

NETWORKWORLD



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Six products that deliver cost savings,
reliable WAN links, and advanced
security for branch offices. **Page 22** ▶

IBM to expand mobile unified communications

BY TIM GREENE

IBM PLANS to introduce a variety of collaboration tools to mobile platforms in an effort to create full-featured unified communications endpoints.

Initially these mobile tools will enable calling features that, for example, determine the least expensive mode for making a phone call, but that will be expanded to include the full range of IBM collaboration and conferencing features, said Alistair Rennie, general manager of IBM Lotus during an interview at IBM's new and sprawling software development facility in Littleton, Mass. With the most recent release of Lotus Same-Time Unified Communications collaboration software last week, the platform now supports BlackBerry 5.0 and Microsoft Windows Mobile 6.5 clients.

▶ See **IBM**, page 16



“It's not about feeds and speeds but about transforming business functions.”

ALISTAIR RENNIE, GENERAL MANAGER
OF LOTUS SOFTWARE FOR IBM

Necessity of new IETF switching, routing specs questioned

BY JIM DUFFY

TWO HIGH-PROFILE specifications winding their way through the IETF promise to boost data center switching and service provider routing, but advances from Cisco and Juniper Networks raise questions about how much the specs are even needed.

For switching, the IETF is working on Transparent Interconnection of Lots of Links (TRILL), which is intended to overcome limitations of the Spanning Tree protocol in scale

▶ See **Switching**, page 12

Redefining X.

When an organization needs more computing power for today's memory-intensive workloads, the conventional wisdom is to buy more servers. This can lead to massive inefficiency and server sprawl, with the majority of servers today running at only 10% utilization¹. As the computational demands of a smarter planet continue to explode, this sort of inefficiency has become a problem—a problem IBM engineers have now solved. The 5th generation of Enterprise X-Architecture[®] from IBM featuring the Intel[®] Xeon[®] Processor 7500 Series lets you add memory independently of the processor. As a result, IBM eX5 systems can leverage 6x more memory than current x86 servers, reduce storage costs by up to 97% and cut licensing fees by 50%².

A smarter business needs smarter software, systems and services.
Let's build a smarter planet. ibm.com/systems/ex5



1. McKinsey study: <http://www.datacenterknowledge.com/archives/2009/04/15/mckinsey-data-centers-cheaper-than-cloud/>. 2. Comparison of IBM System x3850 X5 + MAX5 with total 96 DIMMs x 16 GB for total 1.5 TB of memory vs. IBM System x3850 M2 with 32 DIMMs x 8 GB = 256 GB. Comparison of processor-based licensing fees on current Generation 4 processor systems with 64 DIMMs vs. the IBM System x3690 + MAX5. IBM eXFlash technology would eliminate the need for a client to purchase two entry-level servers and 80 JBODs to support a 240,000 IOPs database environment, saving up to 97% in server and storage acquisition costs. IBM, the IBM logo, ibm.com, X-Architecture, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the United States and other countries. © International Business Machines Corporation 2010.

FROM THE EDITOR | JOHN DIX

Living with infection

Even as average enterprise security spending has risen over the years from 2% of the total IT budget to 10%, the percentage of compromised corporate machines has also climbed, now up to 7% to 9% by some estimates.

As good as we have gotten at fighting the well-known stuff — say the Zeus/ZDbot and Koobface botnets — the targeted, more stealthy attacks typically go undetected. The point is, your network is likely infected.

Damballa, a company that makes tools to detect the command and control communications used to run botnets, says every company it has done proof-of-concept demos for has been infected. All of them.

Andreas Antonopoulos, a senior vice president of Nemertes Research, says the bad guys control more than 5 million machines in what he calls dark cloud computing. The more targeted attacks are hard to pick up because the perpetrators take their time, using bots to subvert a little at a time, then using that knowledge to subvert some more.

Long duration is now even the norm with old-style attacks, says Jim Maloney, president and CEO of consultancy Cyber Risk Strategies, and formerly head of security for Barclays and Amazon.com. In a Webcast sponsored by Bit9, Maloney pointed out that Operation Aurora originally directed at Google spanned nine months.

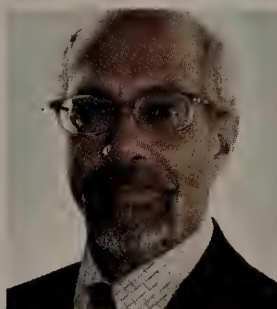
Maloney says forensics after one bank breach revealed the crooks would wait two to three weeks between each step in their attack. It started with a low-level, quiet scan, which was followed by a noisier scan, then the attackers lobbed a text file on the bank's Web site, then eventually put a tool on the site that allowed them to pull down one customer record, then 10 and so on.

Regardless of the style of attack, we always seem to be a step behind, Maloney says. He argues that we need to make the systems security model more information-centric, more proactive, and he uses this maturity model to help clients figure out where they are today:

- In terms of how their security program is run, he asks clients where they stand on the continuum between being proactive vs. reactive, being strategic vs. tactical, and between viewing security as a people/process/technology challenge vs. simply a tech problem.
- Then he asks if the business views the security program as an investment or a cost, and an enabler or a business inhibitor.

The trick, he says, is to tip these scales to the left. The technologies he likes that will help move us forward include techs that: use general behavior and rules vs. specific signatures (although you still need those too); prevent compromise vs. detect it; and provides actionable intelligence not just data.

The bad guys are patient. We can't afford to be.



John A. Dix

jdix@nww.com
[Twitter.com/JDNWW](https://twitter.com/JDNWW)

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Oracle blind to OpenSolaris potential

➔ **THE BEST THINGS** these developers can do in the light of a lack of support is to help roll the code into Linux or FreeBSD. If Oracle management isn't bright enough to see the great projects coming out of the open source movements, then Fork 'em. (Re: OpenSolaris To Oracle: Fork Off; tinyurl.com/3ydenmx.)

The Linux community would benefit greatly from many pieces of OpenSolaris, my current favorites are ZFS and COMSTAR. With enterprise class free components from OpenSolaris, the *NIX community as a whole would move forward yet again in a grand leap to overtake the database and storage platforms for years to come.

In the end, this could be a great thing for the open source community as the lines merge again and OpenSolaris overthrows its corporate master, which for some reason wants to bite the hand that would keep feeding it. In the end, I hope the community welcomes this exodus with open arms. RIP SUN; I barely got to know thee.

Anon

No such thing as a hack-proof phone

➔ **UNIX/LINUX WAS BUILT** from the ground up in the late 60's with security as a priority and a key ingredient right up front. While certainly not perfect, it is very mature. And it's not just about the OS itself. (Re: Unhackable Android phone can be hacked; tinyurl.com/2ww2vc3.)

The demographic for this OS are people/companies who generally have a better understanding of the threats, the importance of effective security and are willing to sacrifice some convenience to maintain a more secure system.

DOS/Windows was built in the 80s/90s, and any concept of security came later as a bolt-on afterthought. Windows security today, even though it's more "built-in" now, would still be generally regarded as less mature, less well

thought out, and less effective. Examples of Microsoft's boneheaded approach to security abound. Further, security often takes a back seat to backward compatibility and customer convenience. They have to sell this OS to the general public, after all, and the general public often gets annoyed with security features he doesn't understand.

But as has increasingly been noted, having a "secure OS" is only part of

the picture. A large percentage of security issues these days result from users doing very risky things.

More to the point, how does one make a PC, smartphone or other OS-based device fully "idiot proof"? If a user chooses to grant permissions to a new app when they shouldn't — whether it's Android, Windows 2007, or whatever — how can that be

effectively prevented? And yes, if this were Windows Phone 7 under the bright lights right now, I would cut them some slack for this too.

Anon

Enterprise mobility opens door to anonymous spam

➔ **ONE PROBLEM WITH** mobile systems is increased anonymity of the source. If the company has entered a wrong number in their system, then someone could be bombarded with spam and have little ability to get it stopped. (Re: Enterprises are embracing mobile devices; tinyurl.com/36vvg9a.)

My wife's phone receives 50 to 120 text messages each week day and about half as many each weekend day. The messages are from someone's IT organization detailing failing servers and applications around the world.

Unfortunately, there isn't sufficient information in the sender field to identify the source of these messages. Nor is there sufficient information in the content to track down the source (but I sure know a lot about the failability of this IT organization).

Anon

How does one make a PC, smartphone or other OS-based device fully "idiot proof"?

492 Old Connecticut Path, Framingham, MA 01701-9002

Main Phone: (508) 766-5301

E-mail: firstname.lastname@nww.com

Editorial Calendar: <http://tinyurl.com/39sf649>

EDITORIAL

Editor in Chief: John Dix

Online Executive Editor, News: Bob Brown

Executive Online Editor: Jeff Caruso

Executive Features Editor: Neal Weinberg

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DESIGN

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Editorial Operations Manager: Cheryl Crivello

Office Manager, Editorial: Pat Josefek

SUBSCRIPTIONS

Phone: (877) 701-2228

E-mail: nww@omeda.com

URL: www.subscribe.nww.com

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Linux kernel gets Google juice

THANKS TO A pair of protocols developed by Google, the new version of the Linux kernel should be able to speed network throughput considerably.

Google's Receive Packet Steering technology spreads incoming packets across all of the CPUs available on the machine, and Receive Flow Steering calculates which cores would be best suited for processing, given factors such as which applications will be using the packets. Other new features in Linux version 2.6.35 include a new form of memory compression; a front-end for a debugger supplied by SGI; the ability to manage multiple multicast route tables; and a new mode of the XFS file system that bundles logging tasks in order to cut down input/output traffic. tinyurl.com/2wa8w6g



foot facility is under construction in Prineville, Ore., and the company decided to add another 160,000 square feet to the project. Greenpeace won't be thrilled at the expansion plans, having criticized Facebook for choosing a site where the local power company generates most of its electricity using coal-fired plants. Facebook maintains that it picked Oregon because of its dry and temperate climate, which allows it to use more energy-efficient evaporative cooling instead of a mechanical chiller. tinyurl.com/354buqr

\$1.2 billion earmarked for rural broadband

THE U.S. Department of Agriculture's Rural Utilities Service (RUS) has announced \$1.2 billion in grants and loans for 126 broadband deployment projects in 38 states and tribal areas. The funding will enable telemedicine and distance learning and allow farmers and ranchers to get up-to-the-minute information on weather and commodity prices, says Tom Vilsack, U.S. secretary of agriculture. The new awards include grants for deploying WiMAX, fiber and DSL. The RUS has now distributed more than \$2.6 billion in broadband grants and loans through the American Recovery and Reinvestment Act passed by Congress in early 2009. tinyurl.com/37jq2xh

Facebook thumbs nose at Greenpeace, doubles size of data center

FACEBOOK HAS decided to double the size of its first wholly owned data center before the first part of the project is even built. Facebook's 147,000-square-



What server market recovery?

DESPITE PROCLAMATIONS that budgets are opening up, server spending remains weak as companies continue to look for ways to save money, including using virtualization to cram more workloads on existing boxes. According to research firm TheInfoPro, 38% of companies plan to reduce their server budgets, while only 25% plan to spend more. The firm also found that Oracle is the most vulnerable of all server vendors (they bought Sun, remember) because of discontented customers. TheInfoPro reports that 26% of Oracle's customers are considering leaving for a competitor and 21% already plan to leave. tinyurl.com/355ped9

IT VIDEO

Android wins popularity contest

A recent study shows that Android-based phones are more popular than the iPhone. But RIM BlackBerry beats them both. tinyurl.com/2ubv6qw

Extreme fills CEO position

EXTREME REPLACED CEO Mark Canepa last fall with acting CEO Bob Corey (who will continue as CFO) and laid off 10% of its workforce after coming up 18% short on its first quarter revenue targets. Now it has named Oscar Rodriguez as president and CEO, luring him away from Movius Interactive, a privately held developer of messaging, collaboration and mobile media products for service providers. Before joining Movius as CEO, Rodriguez held senior executive positions at Alcatel-Lucent's Enterprise Business Group, Riverstone Networks and Nortel Networks' Enterprise Solutions division. tinyurl.com/3658o7l

Stuxnet worm not new after all

IT TURNS out the Stuxnet worm that made headlines a few weeks ago has been around longer than researchers first thought. The worm is notable not only for its technical sophistication, but also for the fact that it targets industrial control systems designed to run factories and power plants. Researchers at Symantec say that they've identified an early version that was created in June 2009 and acts in the same way as its current incarnation — it tries to connect with Siemens SCADA

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GOOD BAD UGLY

FTC, Intel settle

INTEL HAS reached a proposed settlement with the Federal Trade Commission in the agency's antitrust complaint, with Intel prohibited from giving computer makers benefits for exclusively using its chips. The settlement also prohibits Intel, the world's largest chip maker, from retaliating against computer makers if they do business with other suppliers.

lawsuit
inside

BlackBerry not welcome here, or there, or...

SAUDI ARABIA and the United Arab Emirates announced plans to ban certain BlackBerry services, such as the Messenger function, due to security concerns. Indonesia also was mulling a ban such services.

The countries aren't satisfied with Research in Motion's system of processing messages on servers outside these countries.

Unions not big Michael Dell fans

TWO LABOR unions have asked Dell shareholders to withhold their votes for Chairman and CEO Michael Dell to remain as a director on the company's board following a \$100 million accounting practices settlement the company made with the U.S. Securities and Exchange Commission.

The AFL-CIO and American Federation of State, County, and Municipal Employees, in a letter to shareholders, also suggest that Michael Dell's executive compensation package was excessive during the past decade. Dell, who founded the company in 1984, received more than \$450 million, including money through stock option sales, from his company from 2000 to 2009, while his company's stock value dropped 66% in the same time period, the labor unions said in the letter.

"Based on the allegations in the SEC's complaint against our Company and Michael Dell, we believe that shareholders would be better served by the removal of Michael Dell as the Chairman of our Company's Board of Directors," the letter said.

"By voting to 'WITHHOLD' from Michael Dell, you can encourage the Board of Directors to appoint a new Chairman."

management systems and steal data — but it does not use some of the newer worm's more remarkable techniques to evade antivirus detection. The malicious software was made more sophisticated in the early part of 2010, said Roel Schouwenberg, a researcher with Kaspersky Lab. "This is without any doubt the most sophisticated targeted attack we have seen so far," he says of the current threat. tinyurl.com/35tfpk9

Google Wave washes out

ONLY A year after its release, Google is pulling the plug on its Google Wave social-network service. The company will maintain the service through the end of the year and then roll aspects of it into other Google projects. "Wave has not seen the user adoption we would have liked," blogged Urs Hölzle, Google senior vice president for operations. Despite the company's many attempts to explain it to the public, few latched onto the purpose. A "Web app for real time communication and collaboration, it set a high bar for what was possible in a Web browser," he said. "We weren't quite sure how users would respond to this radically different kind of communication." Sure, blame us. More like the idea was half baked from the get go. tinyurl.com/332yx8p

Life saving iPhone apps

MOVE OVER games and make room for medicine. Developers are tapping into a treasure trove of U.S. government healthcare data and coming up with iPhone apps that help consumers make better medical decisions. Asthmapolis, for instance, uses a GPS-enabled device that attaches to an inhaler and records the time and location when asthma patients use their inhalers. This data is automatically transmitted to the patient's doctor, while aggregate data is available to asthma researchers and public health agencies. tinyurl.com/34vw48o

Wall Street bullish on tech skills

ONLINE JOB board eFinancial-Careers says the number of IT jobs posted by financial services firms was up 24% in July compared to last year. Managing director Constance Melrose says financial services firms are looking for strong programming, database and operating system skills. Experience using technology to evaluate portfolio risk, trading risk and credit risk is also a priority, Melrose says. To which we add, thank goodness. tinyurl.com/35u6fvg

TRUE FACT

How important are mobile devices to your organization's business processes and productivity?

38% Critical **48%** Important **11%** Somewhat important

NOTE: REMAINING 3% SAID IT WAS NOT IMPORTANT OR DIDN'T KNOW. SOURCE: ESG RESEARCH



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Smartphone wave challenges enterprise security

BY ELLEN MESSMER

WITH EVER more employees clamoring to use smartphones for both personal and business purposes, IT and security managers are forced to answer tough questions:

First, will there be sanctioned enterprise adoption of Apple's iPhone — not to the mention the iPad — as well as smartphones based on Google's Android operating system, if not even more varieties?

And, if employees want to use their own smartphone or iPad in business, will that be allowed?

Finally, how will the enterprise prepare to exert management and security controls in a multi-operating system smartphone environment, or figure out how to secure data on a device that the employee, not the enterprise, officially owns?

"It's coming," says Terrell Herzig, data security officer at UAB Health System, the hospital and medical research organization in Birmingham, Ala. "The iPhones, the iPads, the Droid."

Herzig says medical professionals and staff just bring in the devices and expect to get onto clinical systems. They call the help desk, which reacts with bewilderment before calling the security team.

And the demand is so mighty, UAB's CIO has set up a special task force to figure out whether UAB, which already makes official use of the BlackBerry, should become a multi-smartphone environment, or approve use of personal devices.

"We're telling them hold off on buying these devices while we figure it out," he says.

Just last week, UAB completed its security and configuration measures for the iPad, which will now be used with Good Technology's management and security application.

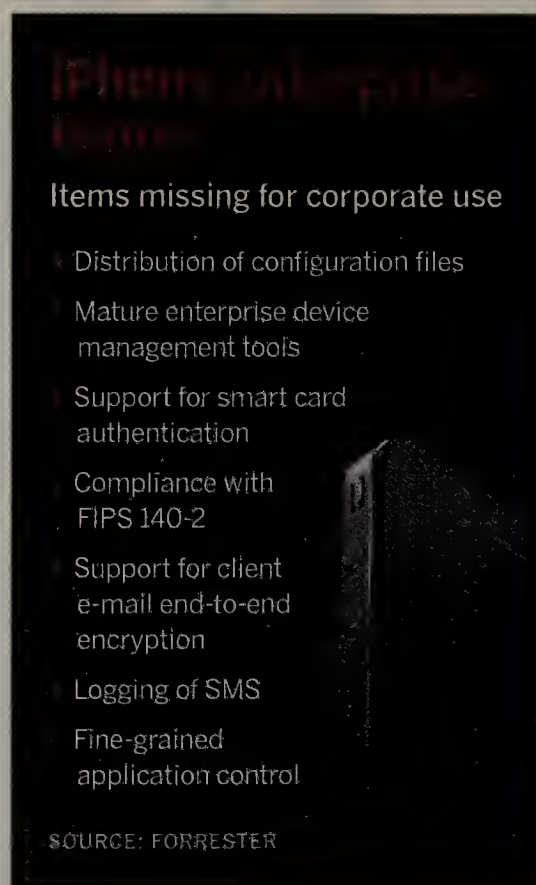
"The new generation of devices have the capability to do the things we want them to do," Herzig says. "A lot of people will want to remote desktop from the Droid."

The prospect of supporting management and security in a multi-operating system smartphone environment, or letting the employee use his own device, is now hotly debated among consultants and analysts.

"Most of the security can't scale to the number of devices the users will bring," says Kalani Silva, director of business transformation enablement at Presidio Network Solutions in Greenbelt, Md. Silva believes trying to support multiple smartphone types in the enterprise will put demands on IT and security — and add costs — that just aren't worth it.

The BlackBerry can be reasonably controlled, Silva says, but that's not the case today with iPhone and the Android mobile devices. And allowing what's brought in as a consumer personal device to be used in business suggests there should be some way to securely partition it.

Other analysts acknowledge there are risks but it should be considered.



"It's a devil's bargain," says Andrew Borg, analyst at the Aberdeen consultancy. RIM's BlackBerry has long been the smartphone staple in the enterprise, and is marketed for that purpose. But the pressure is huge to allow in the stampede of ever-smarter smartphones that are mainly marketed for consumers.

Aberdeen suggests limiting the number of smartphones tested, perhaps to just iPhone or Android, such as the Motorola version. The main consideration is the mobile device management software and whether it extends into the type of management and security controls that are warranted, such as the functions of device lock and device wipe, encryption and being able to lock down access remotely.

Good Technology, Zenprise, Trust Digital (recently acquired by McAfee), MobileIron, Tangoe and BoxTone are possibilities in what's called enterprise mobility management for multi-OS smartphone management and security, Aberdeen reports.

As to whether the employee-owned smartphone should be welcomed into official enterprise use is something each enterprise has to determine based on risk factors, cost advantages and whether access to the device can be adequately controlled. But according to Aberdeen, the phenomenon is spreading.

"Heterogeneity is real and enterprises are saying, 'I have to learn to deal with it,'" says David Goldschlag, McAfee vice president of mobile technologies and former president and CTO at Trust Digital. Goldschlag says Trust Digital's own research on what large corporations are doing suggests about a third want to "enable users' personal smartphones for business."

Gartner analyst John Pescatore says the IT department's response to the smartphone wave should be nuanced based on risk and regulatory-compliance factors.

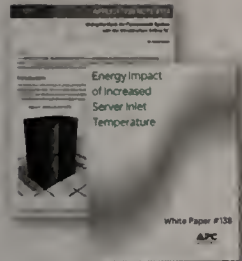
Pescatore says that enterprises need to "set a minimal bar" in terms of management and security. There should be enforceable mandatory start-up password, enforced time out, enforceable encryption and an over-the-air kill capability at a minimum for any smartphone. Active synch support is also preferred.

The key is building those controls around mobility management agent software, but not supporting multiple vendor packages to do that. While these applications and the iPhone and particularly the Android cannot today support every desired security function, it's safe to think they will in the foreseeable future, Pescatore says.

Pescatore adds that security functions such as browser-based filtering and whitelisting will eventually come for smartphones, and carrier-based cloud security services are likely to present more options for security services. In fact, Pescatore says the traditional methods of loading up PCs and laptops with security software simply "hasn't worked" to really ward off trouble such as botnets.

Forrester Research just published a report "Apple's iPhone and iPad: Secure Enough for Business?" in which analyst Andrew Jacquith ardently argues, "'No' is no longer the automatic answer."

Although the Forrester report calls BlackBerry "the gold standard for secure mobile devices," Jacquith indicates the time has arrived to let Apple's iPhone and iPad, including employee-owned ones, into the enterprise for official use under certain restrictions. Desired controls include auto-lock, autowipe, remote wipe, e-mail session encryption and more. ■



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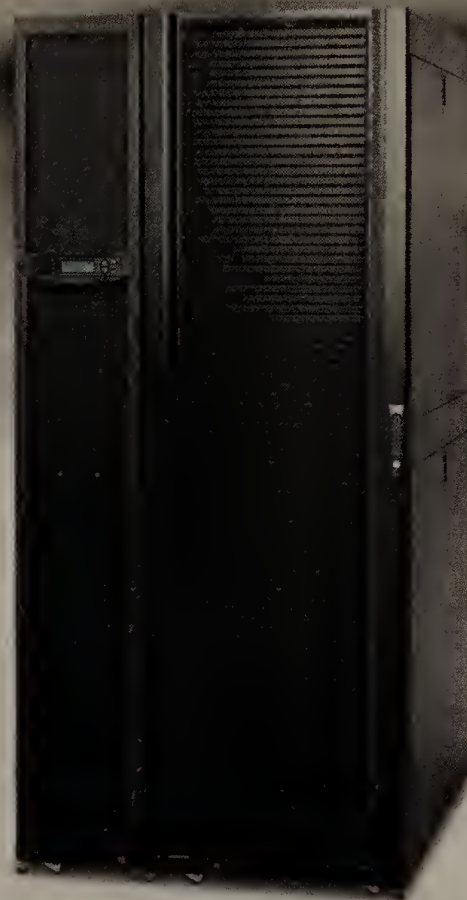
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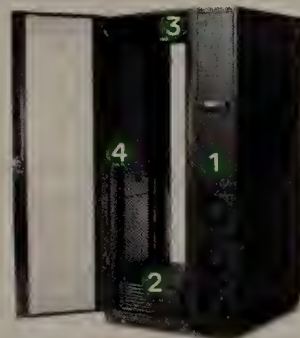
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- 4 **Enclosures** Vendor-neutral NetShelter SX rack design handles high-density airflow and power needs.



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► **Switching**, from page 1

and topology reconvergence. For routing, the IETF is investigating the Locator/ID Separation Protocol (LISP), which is designed to improve addressing and load balancing for enterprises working with multiple ISPs.

While these may seem like solutions to long overdue networking problems, they may also be redundant with capabilities already or soon to be on the market. In the case of TRILL, Ethernet switch market leader Cisco will soon be shipping FabricPath for its Nexus 7000 switch that accomplishes the same tasks TRILL is intended to address while providing more capabilities.

And the IETF acknowledges there are other techniques available today that accomplish some of the same goals as LISP. Rival Juniper concurs, enough so that it is holding off on pledging support for LISP — as well as TRILL.

"We've already been doing this for the last two and a half years," says Dhritiman Dasgupta, senior product marketing manager for Data Center Technologies at Juniper. "What else does TRILL bring to the table? Honestly, we can't find much."

TRILL — IETF RFC 5556 — was authored by Joe Touch, research associate professor at the University of Southern California's Information Sciences Institute, and Radia Perlman, a software engineer at Intel who also created Spanning Tree. TRILL is intended to be a Layer 2 protocol with link state routing enhancements to enable shortest path multipath routing so users can build large-scale Ethernet and Fibre Channel-over-Ethernet data center networks.

Link state routing allows the Ethernet network to discover and calculate shortest paths between TRILL nodes called Routing Bridges, or Rbridges. TRILL is designed to overcome the slow topology reconvergence times associated with Spanning Tree, which limits scale and is more susceptible to link failures, but also backward compatible with existing Spanning Tree implementations.

Donald Eastlake, a principal engineer at Cisco and co-chair of the TRILL working group within the IETF, says the final TRILL RFC document will be published once a companion document that specifies IS-IS code points and data structures is agreed upon. He expects that sometime "fairly soon," while analysts expect products to populate the market in the first half of 2011.

In the meantime, vendors are implementing and testing preliminary versions of TRILL. The University of New Hampshire Interoperability Laboratory hosted a TRILL Plugfest last week; announced participants were components suppliers Broadcom and JDS

Uniphase, and database giant Oracle, according to the UNH-IOL Web site.

Eastlake concurs that TRILL is essentially Layer 2 routing.

"It's pretty much Layer 2.5," Eastlake says.

Don't be surprised if that TRILL RFC is missing from Juniper's data sheets on its EX or upcoming Project Stratus data center switches, however. Juniper claims its Virtual Chassis technology, which interconnects 10 Juniper fixed-configuration switches into a single "switch" supporting hundreds of Gigabit Ethernet ports, accomplishes the same goals as TRILL — chiefly, to collapse layers of switching in a data center network and facilitate more "east-west" communication between servers than "north-south."



“There has been Cisco involvement [in TRILL] pretty much all along. The fact that Cisco is endorsing this whole concept ... is generally a boost for the technology. It makes it a mainline technology.”

DONALD EASTLAKE, A PRINCIPAL ENGINEER AT CISCO AND CO-CHAIR OF THE TRILL WORKING GROUP WITH THE IETF

"What we are doing today is way beyond what TRILL is doing," Dasgupta says. "It's trying to focus on just one problem in isolation, which is Layer 2 multipathing. There's multiple other things happening in the data center."

Some of those other things are lossless transmission and LAN/SAN convergence, requirements being addressed by other standards activities — the IEEE's Data Center Bridging/Converged Enhanced Ethernet work, and ANSI T11's Fibre Channel-over-Ethernet specification among them.

TRILL lacks a holistic data center vision, Dasgupta says, in that it limits a data center fabric to Layer 2 — interdomain communication has to go through a Layer 3 port, such as that on a router, which add cost, latency and a bottleneck in the network.

With Virtual Chassis and Stratus "you don't need to step outside the fabric and then come back in," Dasgupta says.

The only advantage to TRILL then is for interoperability, Dasgupta says. Juniper's Virtual Chassis and Stratus fabrics will not be interoperable with Cisco's FabricPath and Brocade's VCS, so TRILL will be the least common denominator for fabric interoperability between those approaches.

Another issue complicating TRILL's potential is an alternative standard being developed by the IEEE. The 802.1AQ Shortest Path Bridging specification is an extension to the Multiple Spanning Tree Protocol that also uses a link state routing protocol to allow switches to learn

the shortest paths through an Ethernet fabric and dynamically adjust to topology changes.

Eastlake calls Shortest Path Bridging a "competitor" to TRILL.

"Currently, Shortest Path Bridging is limited to a maximum of 16-way multipathing," Eastlake says. "TRILL has no limits — people are talking about 100-way multipathing."

Yet another possible obstacle to TRILL's potential is Cisco's FabricPath. Cisco describes FabricPath as a "pre-standard superset" of TRILL that includes TRILL but extends its capabilities, particularly in media access control address learning and topology computation. But with Cisco's dominance in Ethernet switching and FabricPath's market lead time over a final TRILL standard, the case for

TRILL could be marginalized.

"Initially, customers will gravitate toward FabricPath," says Zeus Kerravala, an analyst at The Yankee Group. "They have such large share that you almost put yourself at a competitive disadvantage by not supporting it."

Eastlake, however, doesn't see FabricPath as a threat to TRILL.

"There has been Cisco involvement [in TRILL] pretty much all along," he says. "The fact that Cisco is endorsing this whole concept... is generally a boost for the technology. It makes it a mainline technology."

Ritesh Mukherjee, a Cisco product manager, says: "Customers can use FabricPath and only have the TRILL capability [active]. That would be fine. I don't think it will be a step down, but you aren't using all of the capabilities provided by FabricPath."

Mukherjee is the product manager for LISP at Cisco. Cisco authored the original LISP IETF document last year and the IETF formed a working group on it shortly thereafter.

LISP was initially designed to help scale the Internet by reducing the number of routing table entries in core routers operated by ISPs. LISP would logically separate a block of IP addresses that a company advertises out to the global Internet into two functions: one for identifying the systems using the IP addresses, and the other for locating where these systems connect to the Internet.

This separation allows LISP to aggregate the location information, so less of it needs

VIEWPOINT



Patrick Leong

CTO AND CO-FOUNDER, GIGAMON

Leong is the key designer of many telecom and network analyzer products used in the data center. A physicist by training and an inventor of many patents, Leong has successfully taken numerous products across a broad range of technologies from inception to market.



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Gigamon makes innovative shift in built-in network monitoring

Gigamon CTO Patrick Leong was part of the engineering team that invented technology he says will revolutionize network traffic monitoring in today's high-speed, distributed, lights-out data center. Read on to find out why.

With the increasing number of 10Gbps connections within the data center, how is the ability to monitor, record or analyze critical data affected?

In the past, monitoring solutions connected directly to network segments. Today, a lot of companies *cannot* connect directly because their tools cannot handle the full 10Gbps load.

Gigamon's data access switch—GigaVUE—takes 10Gbps traffic at line rate, and intelligently distributes the traffic out to 10Gbps and 1Gbps tools based on user-defined criteria. Each 1Gbps tool gets a more focused scope of the 10Gbps traffic, and significantly reduces the chance of dropping packets due to bandwidth over-subscription.

The faster a network, the more difficult it is to accurately time-stamp a packet so that it correctly reflects the application response time. GigaVUE's GPS-based time stamp engine provides nanosecond-resolution, synchronized time stamps on packets collected over a wide geographic area, and is a great tool for latency measurements.

What type of investment is required to build a centralized data center monitoring infrastructure, and what is the ROI?

The investment for building a centralized data monitoring infrastructure is relatively small compared to populating a lot of tools over the network. This is because the GigaVUE can aggregate traffic from multiple network segments to the same tool. Also, the GigaVUE can multicast the same traffic to multiple tools, providing 24x7 network visibility to multiple teams. This speeds up the overall response time to any network or security issue.

What is needed to securely access and gain complete visibility of your data?

The old practice of locking up your physical tap is not secure enough. All it takes is a break-in to reconnect your tap cable to somewhere else, and your traffic will be compromised. With GigaVUE, any change in link status or connection configuration will generate logs and SNMP traps. The three-tier user level system, together with syslog and integration to TACACS+ and RADIUS servers, allows much finer user access control. The GigaVUE can even mask out sensitive fields in the packets so that the IT personnel cannot see more than they need to see.

What are some of the productivity gains/tradeoffs for data center staff?

24x7 secured network visibility for multiple teams is the biggest gain. In the old days, IT and Security teams could be fighting for the same span port access to a switch or router. The fact that we no longer have to deploy tools all over the place reduces the capital expenses, and saves up a lot of valuable rack space. Some of the more advanced GigaVUE features, such as GPS-based time stamping, ingress port labeling of packets, slicing or masking will boost the performance of your tools.

The GigaVUE is a paradigm shift in network monitoring. As with any paradigm shift, some change in your network deployment configuration is needed. But the simple concept of connecting traffic from a network port to a tool port makes it very easy to understand and visualize.

What kinds of IT skills and training will be required in this new model?

We designed GigaVUE with a command line interface that is user-friendly, and a GUI that runs on a standard Web browser. Anyone who can control Cisco switches and routers will be able to pick up the CLI in no time. The GUI allows you to control the box in an easy graphical manner, with no learning curve.

BlackBerry Torch could sink or swim on OS 6

Revamped operating system key to RIM's future

BY BRAD REED

FROM A tech specs perspective, Research in Motion's new BlackBerry Torch smartphone isn't groundbreaking. Rather, its success or failure will hinge upon the strength of its revamped operating system.

RIM's newest device doesn't have a gigantic high-definition screen like the Motorola Droid X, it doesn't have 4G connectivity like the HTC Evo 4G or even a 1GHz processor like the iPhone 4. Instead, it has a fully retooled operating system and Web browser that is designed to make BlackBerry devices appeal more broadly to consumers and to help RIM keep up with the iPhone and Android-based devices.

The BlackBerry OS 6, which debuted last week along with the BlackBerry Torch smartphone, has been in the works for quite some time and is the culmination of RIM's efforts to redo its operating system and Web browsing experience. The company first tipped its hand that it was looking to remake its Web browser when it purchased open source Web browser developer Torch Mobile, whose flagship Iris Browser is based on the open source Webkit browser engine and is specifically designed for mobile phones, set-top boxes and ultra-mobile PCs.

So now that we've taken our first official look at BlackBerry OS 6, what are its key features? Among other things, the new Webkit-based browser will offer auto-wrap text zoom on the device's touchscreen. In other words, every time you zoom in or out on a Web page on the BlackBerry Torch, the browser will automatically wrap the text to fit within the screen size. This was a feature that was sorely missing in the BlackBerry Storm, which didn't even have a touch-zoom capability.

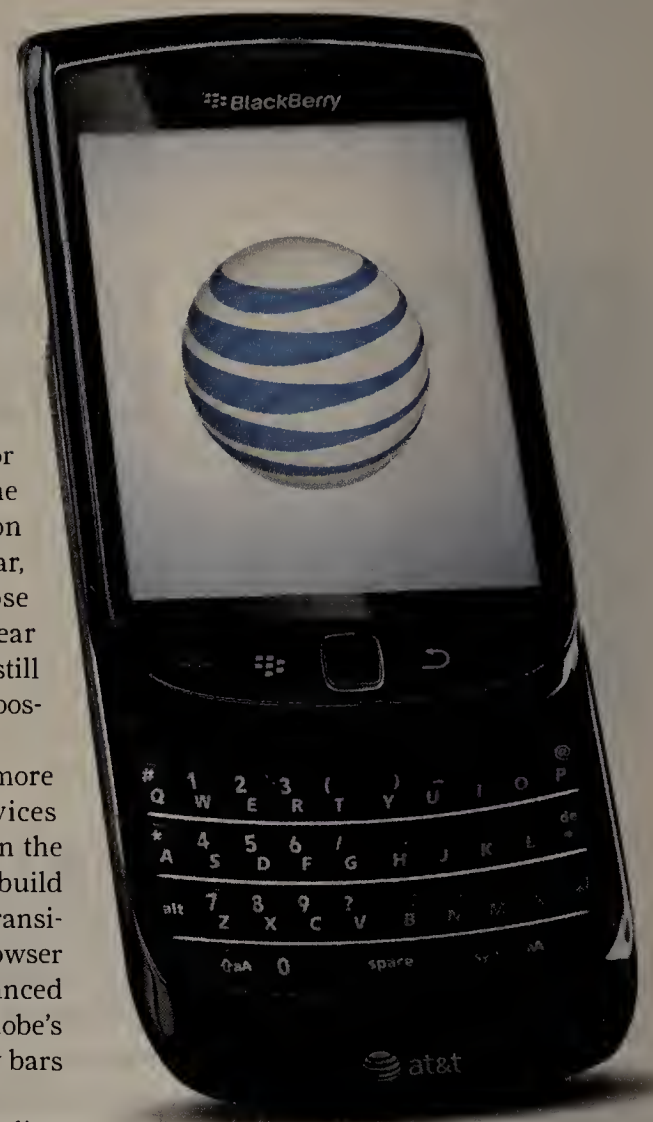
The operating system will also work with social networking and messaging tools, such as Facebook, BlackBerry and AOL messengers, Twitter and Google Talk, so that users can access the latest messages from all of their social networking sites right from their home screens. Looking for content on BlackBerry OS 6 devices will be easier as well, as the operating system now has a Universal Search application that will let users search the entire device for contacts, pictures and so forth.

RIM is also trying to simplify the home screen on its devices by giving users several sidebars they can choose from that can limit the number of icons to appear on the main

screen. Using the "frequent" sidebar, for instance, will result in only seeing the most frequently used applications on the home screen. The "favorites" sidebar, meanwhile, lets users pick and choose which applications they want to appear as icons on the home screen. Users can still access every app they want as well by choosing to use the "all" sidebar.

Finally, RIM is trying to encourage more application development for its devices by allowing app development based on the HTML 5 standard that lets companies build graphics, typography, animations and transitions without relying on third-party browser plug-ins. Apple's Steve Jobs has advanced HTML 5 as a mobile alternative to Adobe's Flash platform, which Apple currently bars from its iPhone devices.

Even if the BlackBerry OS 6 is a resounding success, however, it's not clear that the BlackBerry Torch will help the company catch up to the prime offerings from rivals Apple, HTC or Motorola, at least from a consumer perspective. While BlackBerry devices still offer by far the most enterprise security features of any smartphone, it looks as though the Torch is already a step behind its rivals



with a slower processor that clocks in at 624MHz and a screen that has a resolution of 480x360 pixels, which is relatively low compared to other big-name devices. It may be true that the BlackBerry Torch is "the best BlackBerry ever," as AT&T Mobility CEO Ralph de la Vega put it Tuesday, but that still might not be enough. ■

► Switching, from page 12

to be stored in the core routers. LISP proponents also say the technique would make it easier for companies to switch carriers without having to acquire new IP addresses because the identification function would remain constant even if the location information changes.

It is beneficial for enterprises deploying multihoming -- using multiple ISPs for Internet access service -- and can also be used to balance traffic loads destined for multihomed enterprises as well as other traffic engineering applications.

LISP would operate in conjunction with the Border Gateway Protocol and any other routing protocol, and with both IPv4 and IPv6, Mukherjee says.

"We look at LISP as a new routing architecture, which enables enterprises and service providers to simplify multihomed routing, provide data center virtual machine mobility and to reduce complexity,"

Mukherjee says.

Even though LISP was initially authored by Cisco, it is not facing any significant resistance from Cisco competitors, Mukherjee says. Indeed, the LISP working group is populated by representatives from other vendors and is co-chaired by Joel Halpern, who is with Ericsson.

But Juniper, the No. 2 vendor to Cisco in routing, says LISP reinvents the wheel.

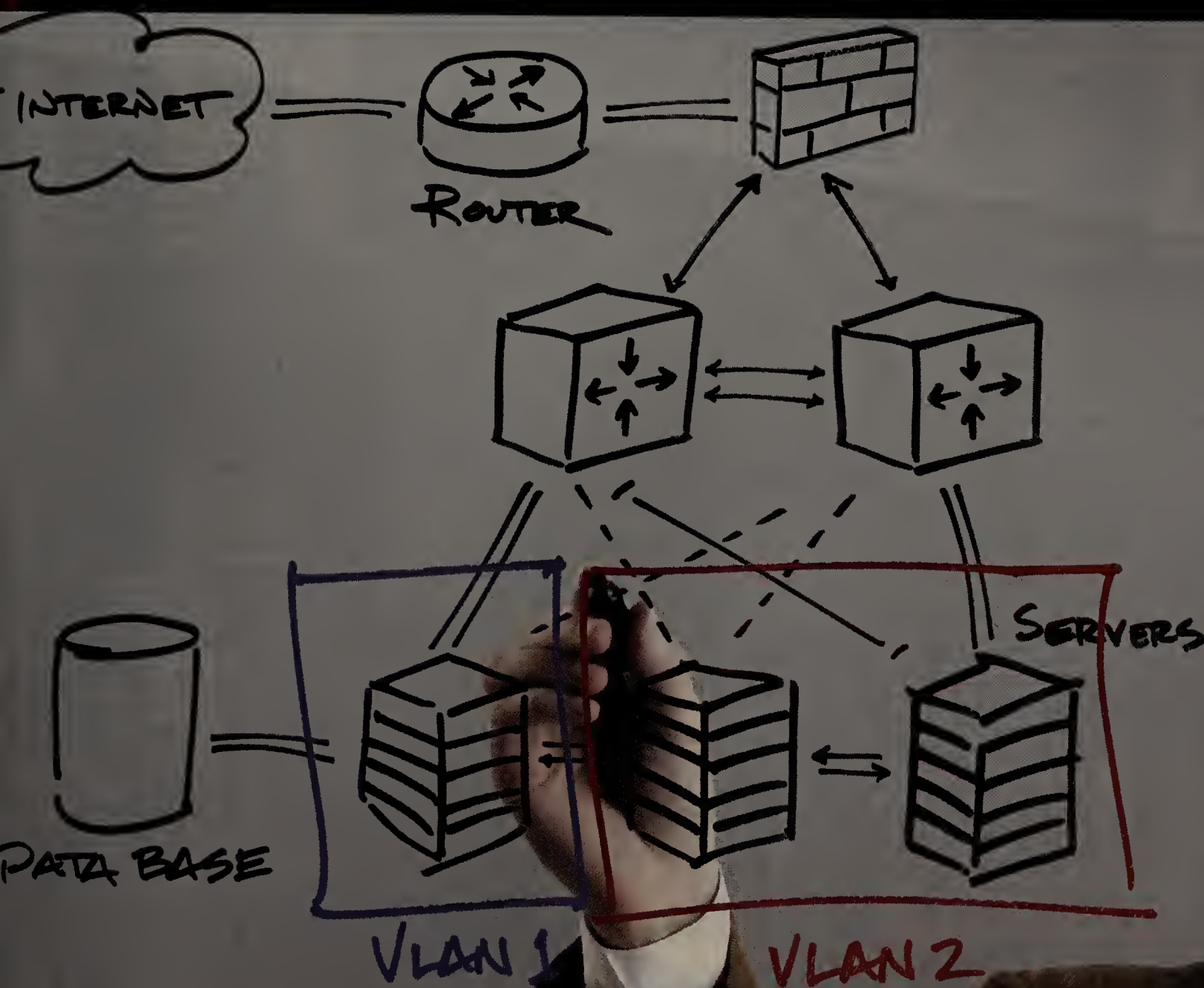
"It is a single vendor authorship," says Mehdi Sif, director of technology marketing in Juniper's Infrastructure Products Group. "There is a question out there on whether this is a vendor-specific solution to a vendor-specific problem."

"[There are] existing standardized mechanisms -- route aggregation, route summarization, FIB/RIB compression mechanisms -- widely deployed today, even for legacy platforms. I would see LISP as a subset of much broader conversations that are happening across the board -- and which involve all of the vendors, by the way." ■

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When your network is your business.

► IBM, from page 1

As it accelerates its mobile plans, IBM expects to exploit its already extensive interoperability with other platforms including its major competitor in UC — Microsoft. Its mobile support will also challenge competitor Avaya and its mobile clients. As businesses deploy 4G handhelds, IBM will fully support collaboration “on the mobile device of choice” and treat the collaboration features as an always-available set of tools, Rennie said.

He expects customers will adopt SameTime for mobile devices via its cloud-based collaboration suite LotusLive, starting with a core of instant messaging, presence, Web meetings and some video. That will grow to include voice integration with corporate directories as well as full video services.

Rennie also said the company would respond to customer demand for appliances that can be used to more easily bring collaboration tools into their networks, much the same way that they can add security platforms to their networks via IBM security appliances.

IBM is also building a downloadable, browser-based plug-in so anyone can join SameTime conferences even if their machines lack SameTime clients. Later this capability will be deployed from LotusLive clouds so, for example, a bank could call a conference to talk to high-value customers and have them participate with relative ease, said Rob Ingram, IBM senior product manager for UC. The clients are already available for Web conferencing and IM, and the browser-based client for video is scheduled for the first quarter of 2011. After that the company may look into a mobile browser-based client as well, he said.

The company is working with videoconferencing vendors to build adapters to communicate with IBM video infrastructure so, for example, IBM desktop video participants could join conferences anchored by Polycom gear, he said. The user case they’re working on is collaboration with business partners who might not have IBM videoconferencing infrastructure, Ingram said. The list of those participating includes Cisco and Polycom but not Cisco’s Tandberg gear or HP conferencing.

Even as he looks ahead to mobile collaboration, Rennie noted that businesses over the past 18 months have altered their view of UC, which blends presence and various modalities of real-time communication — IM, phone calls, video -- with collaboration tools integrated with calendaring and corporate directories, and non-real-time communication such as texting and e-mail. Elements of IBM’s UC offerings include Notes/Domino for messaging and calendaring; Lotus Connections for social collaboration; Lotus Quickr for team collaboration; SameTime for



IBM is big in Massachusetts

IBM opened its largest North American software development facility in June, in Littleton, Mass., that complements a site in nearby Bedford. The development lab consolidates facilities that came along with acquisitions IBM has made in the state since 2002.



Unified Telephony; Lotus Live for on-premise or cloud collaboration.

Whereas customers may have regarded UC as a package of tools that could be bought and installed, they now look at specific business processes from a desktop perspective rather than as a back-end resource, Rennie said. UC might have been deployed before for a siloed purpose such as a tool for contact-center agents, but now businesses see it with wider applications, he said.

CFOs, for instance, can see the cost-saving benefits of enabling a business-analytics dashboard that pushes through work to the next stage by notifying the right person to handle it and pulling together conferences when needed. “We call it collaboration-enabled business processes,” he said.

Such an idea is in contrast to just promoting attractive UC features. That is the way IBM has been selling UC in the past, and that needed to change, says Don Van Doren, a principal with Unicomm Consulting.

“The quick-to-communicate stuff is useful, but it doesn’t touch the central concepts of unified communications and impact how companies can function differently. You need to get to the business guys and say there’s a business-process bottleneck that costs them two days out of every business development cycle,” he says. And then show how UC can remove the bottleneck. But the task is daunting because that means pulling in top executives and line-of-business managers to help make the technology decisions with the IT staff, he says.

Even with that challenge, IBM is aligned to do well in battling its primary competitor, Microsoft, he says. Other UC vendors such as Cisco and Avaya come from the telephony end of communications, and he feels that software vendors with control of desktop software have the edge. One of IBM’s strengths is that it already has desktop productivity software widely deployed in corporate networks. And it is interoperable with Microsoft platforms, he says, making it possible to use products customers have already bought. Specifically, he pointed to IBM’s strategy to enable putting IBM SameTime presence inside Microsoft’s Outlook and SharePoint.

Van Doren ranks IBM far ahead in social networking software for business with Lotus Connections tied into presence and with its capabilities for mining information within the corporate network to enhance finding the right people for specific tasks. “They’ve been working on this four or five years,” he says. “Cisco is just starting to do it.” ■

Company	Technology acquired
Rational DEC. 2002	Development software
Ascential MARCH 2005	Data integration software for building data warehouses
DataPower OCT. 2005	SOA appliances
iPhrase NOV. 2005	Web search
Bowstreet DEC. 2005	Portal development software
MRO JULY 2007	Asset and service management software
Watchfire JULY 2007	Web application security testing
WebDialogs AUG. 2007	Web conferencing
Cognos NOV. 2007	Business intelligence/performance management
AptSoft JAN. 2008	Business event processing software
Diligent APRIL 2008	Deduplication software
FilesX APRIL 2008	Storage software
Ounce Labs JULY 2009	Application security testing
Guardium NOV. 2009	Database monitoring
Storwize JULY 2010	Data compression

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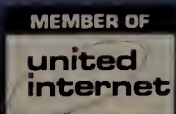
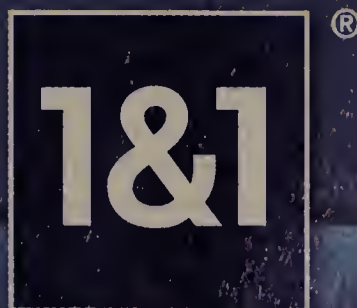
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The price of free Internet: a piece of your soul

YOU THINK Google knows too much about you? Internet tracking companies know far more.

It is not news that there are a lot of companies, and maybe a few governments, tracking your every move on the Internet. But most people have not yet internalized just how pervasive and detailed the tracking is.

A series of front-page articles in the *Wall Street Journal* will help raise the level of awareness among the general public and, more importantly, among policy makers in Congress and the federal regulatory agencies.

Most people do understand that the Web sites you visit on the Internet can, and most do, use cookies to keep track of who visits and what they do there. What is not so well known is that many sites have arrangements with third-party companies that let them also put cookies on your computer.

This is an issue because the third-party companies have agreements with lots of Web sites, and there are lots of these third-party companies, so they can track you between Web sites. For example, if you visit the Web site of one automaker then go to the another automaker's Web site, a third-party company can see what you did on both sites and use that information to understand more about you. The third-party companies then sell information about your activities to advertising companies so that you will see ads better designed to get you to buy something.

This may not seem like a big deal, but note that some of these third-party companies have arrangements with thousands of Web sites and, thus, can find out a lot about you.

The Journal is not the first to talk about the issue. For example, I saw quite a good presentation by AT&T researcher Balachander Krishnamurthy during the IETF meeting in Anaheim.

You can protect yourself from some tracking by setting up your browser to not accept third-party cookies and to erase cookies when you exit from the browser — both are easy to do in Firefox and Safari (the Journal reported on Aug. 2 that Microsoft killed a plan by its engineers to block the tracking by default). Microsoft was more than a bit conflicted since it just bought a company that sells ads.

Even if you set your browser to delete cookies you may not be safe since a number of companies are overriding your preferences using Adobe Flash cookies. This behavior is now the subject of a lawsuit.

Very few of us pay money to the Web sites we visit on the Internet. To us, most Web sites seem free. There are a few that people pay for, but to date most experiments wherein a Web site puts up a "paywall" that demands money before you can enter have failed. Operators need to have some reason for maintaining their Web sites. The reason can be pride, or sales, customer service or part of a wider mission. But in many cases, just like with "free" TV, there is real money involved — money from advertisers. Google is not being altruistic in not charging you to use its search engines.

But there is a trade-off. There is a point where these folks know just too much about us and we know nothing about them. I understand that someone has to pay for my "free" use of the Internet but I'd rather the price not be such an intrusive look into my soul.

Disclaimer: Harvard has used Google Analytics, one of these third-party companies, but I know of no university opinion on selling souls in exchange for a little content, so the above lament is my own. ■

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com.



Softer data-leak prevention

DATA-LEAK PREVENTION is growing at 10% a year, a bit slower than anticipated but still pretty fast compared to other security

technologies. In this year's research we see DLP use or active evaluation among 36% of research participants. The primary driver is compliance, as with most security funding. In looking at DLP deployment over time we noticed quite a few companies that deployed DLP last year pulled back on their deployments because of a backlash from users and management.

Many companies did not succeed in their DLP implementations because they saw DLP as an enforcement tool and not an awareness tool. When DLP is implemented as an enforcement tool, the controls are strict and run the risk of disrupting business. Here's why:

Most leaks are not leaks by determined adversaries. Those are pretty much impossible to stop anyway — there are too many ways to leak information if one is determined. Accidental leaks can be stopped, but to do so we must understand why they occur and accept that some of the responsibility lies with IT itself.

The vast majority of leaks, at least according to what we see in the media and hear from our research, occur accidentally. Dig a little deeper and you find that they are not simply the result of negligence or irresponsible users. In many cases, leaks occur when duly authorized users of the data, in the process of fulfilling a legitimate business process, choose an insecure means to store or transmit the data. They're trying to do their job, the best way they know with the tools they have. An accounting manager needs to send the latest quarterly numbers to

an external accounting or audit firm. He doesn't have encrypted e-mail, encrypted FTP or PGP. So he sends it by e-mail. Crude DLP only makes this problem worse: you stop the e-mail, they try gmail; you stop gmail, they try IM or facebook or whatever else they know. Whose fault is it if they don't have encrypted e-mail or SFTP or some better way of doing this? Not the user's fault — IT is to blame.

If you look at DLP as an awareness tool, then you can fix these broken processes. Each of these mistakes contains several opportunities for improvement. You can train the user about why certain methods are dangerous. You can tell them about better methods. Most importantly, IT becomes aware of dangerous practices for which they have not provided better alternatives. IT professionals: put a DLP in "soft" reporting mode for a few months and you will find out that you don't know how the business runs.

Soft DLP is DLP focused on training and awareness for all sides (IT and users). It allows exceptions ("if you're sure then click continue to do it anyway") and logs the results so that improvements can be made. It's incremental, non-judgmental and business friendly. Eventually, you can tighten controls. You might discover that with soft-DLP, better alternatives and training you don't need as much enforcement. Turns out DLP is not a tool for controlling users, but a tool for teaching IT about the business. That's what makes it so valuable. ■

Antonopoulos is a senior vice president and founding partner at Nemertes Research, an independent technology research firm. He can be reached at andreas@nemertes.com.

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TOOLS

Building a better netbook

I recently received for review a Samsung NB30 netbook computer. Wikipedia defines netbooks as a “category of small, lightweight, and inexpensive laptop computers suited for general computing and accessing Web-based applications,” which is to say they don’t have powerful anything and they’re cheap.

The NB30, built around the low-power 1.66GHz Intel Atom N450 system-on-a-chip (SoC) with integrated memory controller and graphics core with 1GB RAM, costs \$379.

The device comes with a 160GB HDD (and has a Free Fall Sensor to park the heads to prevent disk damage if the computer is dropped), a 10-inch LED backlit display, 802.11 b/g/n Wi-Fi, 10/100Mbps Ethernet, a 0.3Megapixel Webcam (which is surprisingly good), and a six-cell lithium ion battery that provides up to 6.5 hours of run time. So far, not bad.

But what did Samsung do? It decided the device should ship with Windows 7 Starter edition. This is like taking a Ford Explorer and swapping out its 4-liter V6 for an Edwardian steam engine. To say that Windows 7 sucks the life out of the product is an understatement.

And heaven forefend that you should want to actually connect to wireless if you don’t have endless patience. Why does Windows do such a bad job with Wi-Fi?

Whatever value Samsung might think Windows brings to the netbook party is irrelevant in the face of what, at least to my jaundiced eye, results in lackluster performance.

So what could improve on this situation? I think you know where I’m going with this ... yep, good ol’ free and open source Linux, and specifically Ubuntu 10.04 (Lucid Lynx) Netbook Edition.

Ubuntu Netbook Edition uses the GNOME window manager with the most excellent custom Ubuntu Netbook Edition (UNE) interface and includes pretty much every application you might want on a general purpose, portable system.

UNE is ridiculously easy to install and knows about a huge range of peripherals; it’s easy to configure; it isn’t a resource hog; and it runs really, really fast even on the 1.66GHz Atom N450.



Mark Gibbs’ Gearhead

I downloaded UNE, installed it onto a 4GB USB drive (\$10 from Fry’s!) using the Universal USB Installer, stuck the USB drive in the NB30, restarted the NB30, went into the BIOS set up and moved the USB drive above the HDD, told the BIOS utility to save the configuration, and, voila!

The whole process (other than the download) took minutes and, on reboot, Ubuntu Netbook Edition was up and running in seconds.

I clicked on the Wi-Fi icon in the menu bar, configured the Wi-Fi subsystem, and, another voila! I was on my network in seconds. None of that noodling around Windows does whenever it connects, just straight online.

Running the OS from a USB drive is great for testing to make sure everything works right (on the NB30 everything did; camera, mouse, keyboard, Bluetooth, Wi-Fi) and there’s also

► See Gearhead, page 21

IT asked and answered

Ron Nutter tackles your tough tech questions at tinyurl.com/yg2o434

How can I run an app for Windows 7 x86?

➔ I will assume you don’t have the source code for the app and/or the company that wrote it is either no longer in business or won’t support the app on Win 7. While you try to get it ported/converted you could use virtualization software to provide a 32-bit environment on a x64 platform. This requires an additional guest OS license since you will be running two different OSs at the same time. Your options are VMware, Virtual PC or VirtualBox. The application won’t run natively in x64 in this situation but at least you can run it on x64. I also found a site — www.rtr.com -- that might be an option as well. They have a good article about porting apps — tinyurl.com/269or33.

If I wanted to build a Foundation site to test some upgrade conversions on old WSS 2.0 sites would I have to install Foundation on a different server than the server I installed 2010 Enterprise on? The current SharePoint Enterprise site is 2008 R2 with SQL 2008 installed.

➔ Since this is a test situation, I would strongly suggest you set up a completely isolated environment. Look at Virtual Box or VMWare to help give you a test platform. Foundation only works on the 64-bit version of Windows so that will need to be factored in. Since there are several variables that you may be working with, starting in an isolated environment will be helpful in isolating problems to the base install vs. operation in a server farm.

GADGETS

Catching up on the Cool Tools backlog

IT'S NOT EVEN the holiday season yet and boxes have started to arrive daily. This also means I need to catch up on writing about some smaller items that have been sitting around for a while that I can talk about briefly without writing a full review:

- I like the **iPad Recliner** from LapWorks (\$45), which gives your iPad a place to rest for watching videos, or if you want to try to do things with the iPad in a vertical position. You're not just limited to the iPad — if you're a Kindle or other e-book owner, you can use this device as well. The stand can recline in multiple angles and will support the iPad in portrait or landscape modes. You can also use it with your notebook to incline that in a more vertical position.
- I took a while before deciding whether to add **GelaSkins** to my iPad. On the one hand, the designs are wicked cool, and they create a unique look for your iPad. My big fear was that I'd mess up applying the stickers on the front and back of the

iPad, but fortunately the skins are easy to apply and take off. My only concern — at \$30 for the stickers, it could be pricey if you want to put on many skins.

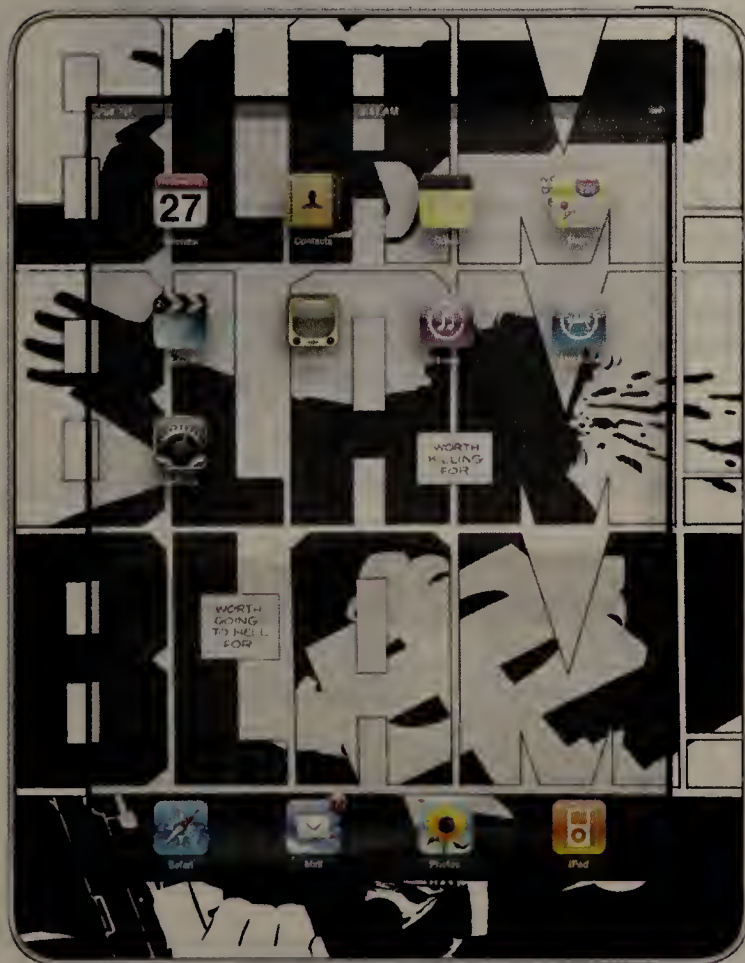
- The iPhone app **"IcePics"** (99 cents) doesn't take photos of ice, but rather stands for "In Case of Emergency". The app is simple — when you open it, click a button to take a photo, and the app uses the phone's GPS to mark your location when you took the photo. You can set up e-mail addresses ahead of time, which get sent an alert when you take a photo. The app is designed for users who need to inform people where they are in emergency situations (lost hikers, broken down car and so forth), but you can also use it as a handy travelogue ("Hey, look at this roadside attraction!").

■ The official term is "mechanical keyboard", but I prefer "clicky keyboard." That's why I loved trying out the **Adesso Full Size Mechanical Gaming Keyboard with USB Hub and Audio Jack** (model MKB-135B, \$100). Long name, but cool keyboard. The audio tactile feedback sounds great, and to me it feels like I can type faster, just like my other favorite keyboard, the Das Keyboard. The Adesso version includes USB hub functionality (you have to plug an additional USB cable to enable that), as well as audio and microphone jacks, for systems where those jacks are in the back of the computer. Also, the keyboard's N-key roll-over function lets you press up to six keys at the same time, great for gamers who want to have two keys register at the same time (for diagonal turns!).

Follow Keith on Twitter at <http://twitter.com/shawkeith> or Facebook (<http://bit.ly/cgVPsQ>)



Keith Shaw's Cool Tools



GelaSkins designs are wicked cool and easy to apply.

TRUE FACT

Do Web 2.0 applications interfere with the security posture of your company?

10% **NO**

10% **YES**
MODERATE IMPACT

34% **YES**
SIGNIFICANT IMPACT

46% **YES**
VERY SIGNIFICANT IMPACT

SOURCE: PONEMON INSTITUTE SURVEY SPONSORED BY CHECK POINT

► Gearhead, from page 20

an option to install Ubuntu Netbook Edition to the hard drive if you're satisfied.

The bottom line is that Ubuntu Netbook Edition makes the NB30 a very attractive device. Under UNE the NB30 boots fast, runs fast, has a great user interface, is incredibly easy to configure and makes the machine a pleasure to use.

I can only award one rating per column so I'm going to award the combination of the Samsung NB30 and Ubuntu 10.4 Netbook Edition a 5 out of 5. With Windows 7, I might be able to stretch to maybe a 3.5. Maybe.

Gibbs stretches in Ventura, Calif. Tell him how flexible you are at gearhead@gibbs.com.

CLEAR CHOICE TEST: DUAL-WAN ROUTERS

Supersize your WAN

Inexpensive SMB/branch office routers deliver advanced performance and security

BY JAMES E. GASKIN

Six years ago, we tested dual-WAN routers as a way to pump more bandwidth into small businesses that couldn't afford a T-1 and were stuck with relatively slow DSL and cable connections.

Today, speed is less of an issue. For example, our suburban test lab has an 18Mbps connection with AT&T's U-verse service and 15Mbps (with burst downloads as high as 30Mbps) with Time Warner Cable's Road Runner Turbo.

The critical need today is maintaining connectivity. The ability for dual-WAN routers to combine throughput from two sources, continue if one drops, then reconnect when the link comes back is a key selling point.

Of course, cost is important, too. A T-1 delivers better uptime than any connection from a phone or cable company, and a synchronous connection in and out, but at hundreds of dollars a month. Two 15M to 20Mbps small business broadband connections combined provide far more downstream throughput and 100% network redundancy, all for a total of \$80 to \$120 per month.

We tested six dual-WAN routers: Check Point 1000N, D-Link DFL-210, Netgear FVS336G, SonicWall TZ200, Trendnet BRV324 and Xincom DPG603. All units share a fairly long list of standard features, including VPN support, DMZ support, some level of QoS, and firewalls of varying strength and granularity. Several of the more expensive units offer intrusion detection and prevention.

We found that the ability to separate traffic between two active WAN links is much improved compared with our last test. All units allow you to weight one WAN



connection more heavily than the other in order to push traffic in that direction. Most offer ways to segment users or protocols to a specific WAN link. All support firewalls capable of passing the full throughput of almost all inexpensive broadband links that will be tied together by these dual-WAN routers.

Dual-WAN routers don't really double the throughput to any one computer, but they deliver their true worth when several computers are pulling lots of traffic. No longer will the video download fanatic suck up all available bandwidth.

In our redundancy testing, each router

NETRESULTS

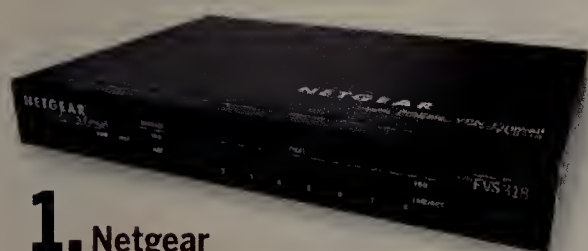
Vendor	Netgear	SonicWall	Xincom	Trendnet
Product	ProSafe Dual-WAN Gigabit SSL VPN Firewall FVS336G	TZ200	XC-DPG603 Twin WAN DNS-to-IP VPN Gateway	BRV324 Dual WAN Advanced VPN Router
Price	\$300	\$400 and up	\$800	\$195 to \$235
Pros	Easy setup; easy management; small business friendly pricing; Gigabit Ethernet support.	Easy to install and manage; strong firewall and security products; excellent branch office option.	Easy to install and manage; well-done admin interface.	Low price; easy installation and management; nice feedback on WAN performance.
Cons	Fewest VPN connections; basic firewall and security.	No Gigabit Ethernet; multiple software options increase cost and complexity.	Basic firewall and security features; relatively low number of VPN connections using IPSec only.	Basic security modules; little dual-WAN configuration possible.

continued after one WAN link was dropped, and recovered when the link came back up. The occasional five minute pause that randomly afflicts residential broadband service in our area disappeared, as the second WAN took up the slack invisibly.

Our VoIP phone had connection troubles with some routers when we configured them to split traffic based on bytes or packets. Setting the load-balancing metric to IP addresses eliminated those issues.

For small businesses, Netgear and Trendnet are priced right, easy to use, and provide basic but not overwhelming firewall and security support. For branch offices with remote management and security policies to enforce, investigate Check Point and SonicWall first.

CLEAR CHOICE TEST

1. Netgear ProSafe Dual-WAN Gigabit SSL VPN Firewall FVS336G

Netgear, despite its consumer roots, has been making network equipment for small and midsize (SMB) businesses for years. The FVS336G, though awkwardly named, is the result of that experience; it's easy to install, easy to configure and easy to manage.

The box we received contained only a power supply, but it was labeled "eval" so may not have had all the pieces normally shipped with a retail unit. The lack of a manual didn't bother us, since the system connected quickly and the administration screens are littered with context sensitive help at the touch of a question mark icon.

Larger and heavier than all the other units

because of its steel case, the FVS336G is still smaller than a hardback book. All the connections except the power plug are on the front panel.

There are four 10/100/1000 Gigabit Ethernet ports on the front, and two other ports labeled WAN1 and WAN2. One of the four LAN ports can be configured as a DMZ port.

Maximum device throughput is 60Mbps, one of the slowest units, but still faster than our two broadband connections combined. It supports 25 VPN IPsec tunnels as well as 10 SSL VPN connections. The stateful packet inspection firewall provides admin pages about as simple as any firewall can be, with separate pages for LAN-WAN, DMZ-WAN and LAN-DMZ rules, and a single button to enable the application layer gateway (ALG) for Internet phone traffic using SIP.

INSTALLATION AND CONFIGURATION

We plugged the FVS336G into our network switch, connected the first WAN cable, and turned it on. The DHCP server provided the default 192.168.1.x address range for our computers, which connected to the router immediately. The first screen that came up was the monitoring screen showing Router Status, with WAN1 up and connected.

Setting the LAN range to 10.0.1.x was also straightforward. From Network Configuration on the top of the admin page, we went to LAN Settings. The LAN address was the top field, and the DHCP settings were right below. We set the range of IP addresses for our clients, ignored the option to connect to a Lightweight Directory Access Protocol (LDAP), and also didn't put in a special DNS server address, preferring to let the unit pass through the addresses from the broadband provider. After hitting the Apply button, the FVS336G rebooted, and we rebooted our computer

to catch the new IP address range.

Adding the second WAN connection was just as easy. Going through Network Configuration to WAN2 ISP Settings, we had the chance to put in login information if necessary (it wasn't), and choose whether we needed to use Point to Point Tunneling Protocol (PPTP) or Point to Point Protocol over Ethernet (PPPoE), and provide a static IP address if necessary. You can again pass through DNS server information from your ISP or put in your own; we let the Netgear box handle that as before.

After rebooting the second broadband modem, the FVS336G made the connection immediately. The Monitoring > Router Status page showed both WAN connections up and running, with full details on IP addresses and primary and secondary DNS addresses. When we hit the Router Statistics icon, a page that refreshed every five seconds appeared, listing the total transmit and receive packets for WAN1, WAN2, and the LAN.

Juggling traffic ratios between the two WAN ports is also easy to configure. A Port Mode page allows you to choose Auto-Roll-over between WAN ports by using DNS or ping of two addresses to monitor WAN health. The better option is Load Balancing, and you can tie any of 63 protocols to one WAN connection or the other. Want all Session Initiation Protocol phone packets to go through only one WAN link? Easy to configure. You can also separate WAN traffic by source or destination network.

OPERATION

For a router with "Dual-WAN" in the name, it's surprising there's no way to choose what type of packet load balancing should be used. The Router Statistics display shows the FVS336G has a marked preference for the Time Warner cable connection in WAN2 in receive traffic, but the transmit packet numbers are about equal. It does show a breakdown of traffic by protocol (e-mail, Web and other) which is interesting. Web traffic was by far the majority.

There are a dozen ways to track and report routing logs, and another 10 for system logs. Even though this product is aimed at small businesses, you can define a syslog server. Speeds were on the high end of average.

The FVS336G is a strong entry in the Dual-WAN market, and that's before taking into account that it comes with the second lowest price tag of the group. Combining good value with good performance makes the FVS336G an excellent option for small businesses with fewer than 50 users that don't need a large number of VPN connections.

D-Link	Check Point
DFL-210 NetDefend Network Security UTM Firewall	Safe@Office 1000N
\$449	\$750, optional modules and licenses run price up to \$1,250 and more.
Strong firewall with high granularity, slightly faster WAN throughput than the rest of the group.	Gigabit Ethernet, highest firewall throughput, 400 VPN tunnels, powerful yet easy to manage firewall.
Painful install and management, poor documentation.	High price for small businesses, recurring license and module fees.

2. SonicWall TZ200

The SonicWall TZ200 is the middle product between the TZ100 and the TZ210, and the smallest and lightest appliance in this test. White and bright and about the size of a CD wallet, it looks more like an Apple product than a firewall. Prices for SonicWall products are hard to pin down because, while the firewall and router have no client license fees, adding support for security features such as enhanced client antivirus and antispyware, VPN Client Windows, UTM SSL VPNs, and a few other options requires user licenses. Figure around \$400 to \$450 to start, and tally up your options from there.

One reason the TZ200 is small is because it has only five ports. Labeled XO-X4, XO is defined for a LAN and X1 for a WAN. The other three can be configured as WAN, LAN or DMZ ports, so it's possible to connect four broadband feeds to this one box if double-double redundancy is important. LAN ports support 10/100 Fast Ethernet only.

Maximum firewall throughput is advertised at 100Mbps, which was confirmed in a recent *Network World* test by Joel Snyder. The unit supports up to 50 IPsec VPN tunnels along with 50 SSL VPN clients.

The only things in the box were the unit, the power supply and an Ethernet patch cable.

Wizards help with setup, starting with the PortShield interface to set port assignments, configure the firewall to provide public access to internal servers, and to set VPN policies. Nice touch, especially since no manual was included with the product on paper or CD. If dual-WAN connections aren't enough, you can buy two TZ200s and run them in High Availability mode. You can also connect a 3G modem to the USB port in case you want a backup for both WAN connections.

INSTALLATION AND CONFIGURATION

Help is only available online, which seems a bit cheeky when selling a router. The admin screen has a question mark icon in the upper right corner, and the help pages that appear are context-sensitive and well written for the non-tech. Unfortunately, many pages respond with a 404 error. Once we saw a message saying "online help for this SonicWall product has not yet been released." Surely that's a linking error, because this unit has been available for more than a year. When you hover over an icon, you're often rewarded

with an information bubble.

The setup wizard appears the first time you connect to the admin screen through your browser, and can be launched any time thereafter. Using a default address range of 192.168.168.x, the TZ200 provides client addresses through its DHCP server. This



unit is the only one that recommended a strong password during the setup. You make your port assignments during setup, but we configured the system initially with a single WAN and added the second later.

All the common broadband connection types are available, but the automatic connect feature worked. After we elected to skip registering the unit, we rebooted and our network clients had Internet access.

Resetting the LAN address range to 10.0.0.x for our test network was a matter of clicking the Network menu item on the left, and Interfaces from the expanded list. XO, the port connected to the network switch, is the first listing. We clicked on the Configure icon and changed the IP address. Then we chose DHCP from the left menu and changed the client address range. When we applied the changes, the unit promised to redirect our admin PC to the new settings, reconfigure the PC to the new settings and resume the page. We did have to restart the admin utility, but otherwise the switchover worked perfectly.

We added the second WAN by plugging into the X2 port and configured it for WAN. Then we went to the Failover & LB screen under Network and chose between balancing options: basic failover, round robin, spillover and ratio. The best performance for our network came with ratio, and we set the two lines to share traffic

50/50. The Failover & LB screen shows statistics for the two WAN connections, updated in more or less real time.

OPERATION

Once configured, the router became invisible, as good routers do. Speeds during group connection testing were on the high side of average for the group, and the 50/50 ratio gave the best throughput for a single computer speed test.

The default admin screen shows system information, the last few log alerts, and network interface assignments and status. You can monitor the traffic statistics on the Failover & LB page. The TZ200 also includes a basic Packet Monitor that allows you to capture traffic and decode most of the packet detail. Logs can be exported or e-mailed on a defined schedule or when full.

SonicWall products tend to fit in the middle between basic devices with little configuration or

security options and the high end units too complicated for small and midsize businesses. While the TZ200 has as much or more firewall and security control than any unit tested, non-techs can install this unit with little effort.

Small businesses looking for all the upgrades may be surprised at the cost if they think of the TZ200 as just a router. For a small business or branch office, the SonicWall TZ200, fully loaded with security modules or not, can be all the routing and security needed, no matter how simple or complicated its security policies.

3. Xincom XC-DPG603 Twin WAN DNS-to-IP VPN Gateway

This is the top of the three-member DPG family from Xincom. Its top-end X16-R supports up to eight broadband connections, and its ParaLynx 70G includes wireless support.

Another unit with straightforward ports, the XC-DPG603 has four 10/100 Ethernet ports and two WAN ports. All the ports are in the back with status lights in the front, and ears are included if you want to rack mount the 9.5 x 5.5 inch blue metal box.

The max throughput is "over 50Mbps" according to Xincom, and the unit supports 30 IPsec VPN tunnels. Officially rated the



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slowest in throughput of the group tested, the practical speed results during our tests were about in the middle of the pack, depending on which load balancing method was used.

INSTALLATION AND CONFIGURATION

Included with the DPG603 are two Ethernet patch cables, a manual on CD, and a quick start guide printed on old-fashioned paper. Connecting a broadband link to WAN1 brings up the admin login screen, followed by the screen to set a password. The administration screen's top menu item on the left is Basic Configuration, and everything you need to set is right there. A question mark icon pops up context sensitive screens that are hosted on the router, so you can get help if you have trouble getting the unit connected to the Internet, a nice touch.

The WAN connection supports Dynamic and Static IP addresses, PPPoE and PPTP. Our connection established automatically, and we moved to the LAN and DHCP settings.

We changed the 192.168.1.x default LAN address range with 10.0.1.x, added the DHCP range for client computers and submitted the changes. After rebooting our admin PC to get the new IP address, we had Internet access and properly configured clients.

Adding the second WAN was just as easy. The Interface page showing Primary Setup is a drop down, and selecting WAN2 was as simple as point and click. The same WAN connection options held for our second WAN, and we were connected to both WANs quickly.

The next choice on the left-hand menu, Advanced Port, offered Load Balancing as the second item. Four load-balancing methods are provided: Bytes, Packets, Sessions Established and IP Addresses. That same screen shows overall statistics, listing the load share between WAN1 and WAN2 and the total bytes transmitted and received across both.

OPERATION

The admin page shows System Status with one of the better information summations of the tested routers. The first group shows which WAN lines are connected, and a Forced Renew button for each to release and then reconnect via DHCP. The IP addresses for both WAN ports appear next, along with DNS information, followed by similar information for the LAN segments. Device information and uptime statistics fill the rest of the page.

The next menu item is WAN Status, and that displays overall WAN statistics over the previous hour. Total bytes, packets and average bandwidth displays give more information than the other units, all gathered in one

convenient screen. It handily shows the traffic percentage between the two WAN connections for each type of traffic statistic.

We found that using packets as the load-balancing method rather than bytes delivered slightly better speeds, but caused our Vonage phone some connection grief. WAN2, the Time Warner Cable link, tended to be more popular and carry more traffic, a trend that occurred in most of the other units.

The easy installation, clean menu and common-sense information displays on the admin utility make this the most small business friendly unit. Those looking for ways to set complicated firewall rules will be disappointed, since the DPG603 focuses far more on dual-WAN routing than on firewall and security.

Other LAN management tools, such as Quality of Service, are available. You can manage the unit remotely from stations within a specified IP address range, for instance, and SNMP is supported.

More for SMBs looking for a dual-WAN router than a company looking for complex security configurations, the DPG603 works invisibly after configuration. Any power user can install and maintain this unit with ease.



4. Check Point Safe@Office 1000N

It's hard to miss a Check Point appliance, because they all have bright orange boxes and bright yellow front panels. The 1000N is no exception, and the small metal box with the gaudy paint job stands out. Check Point has a large number of security products, but the Safe@Office 1000N and the wireless enabled 1000NW are the only small-business-specific products.

All the connections are on the back of the box, with status lights on the front. There are four 10/100/1000 Gigabit Ethernet ports, one dedicated WAN port, a combo WAN2/DMZ port, and a console RJ45 serial port. Accessories include a serial to RJ-45 cable for command-line fans, an Ethernet patch cable, a documentation CD, an illustrated Getting Started Guide and a sales pitch for optional advanced services features.

Check Point calls the 1000N a firewall more than a router, and it advertises gigabit throughput, plus 400 VPN tunnels that can run as fast as 200Mbps. You can also run

two 1000N units linked together for high availability.

Since there are multiple optional software modules, setting the price for the 1000N can be difficult. Check Point says the price starts at \$750, but street prices range from \$850 to \$1,250 depending on the number of users and the installed modules. The price tag may give smaller businesses pause, but IT departments buying for branch offices can justify the price based on the firewall throughput speeds and comprehensive security modules available.

INSTALLATION AND CONFIGURATION

Following the Getting Started Guide is easy. Connect WAN1, connect your network and configuration computer, and turn on the 1000N. The client will receive a DHCP address in the 192.168.10.x range, slightly different than most default addresses. You don't have to remember that, however, to connect to the admin utility, because you use http://my.firewall to access the router.

The setup wizard forces you to set a password with at least five characters, then the Internet wizard takes over. Perhaps "wizard" is a little overblown, since it basically asks for the type of broadband connection, then tries to connect. We linked up first time with no issues. Almost immediately we had Internet access through the 1000N.

Changing the LAN IP address range was also simple. Both the LAN IP address settings and DHCP range are on the Network > My Network page, found by clicking the Edit icon on the LAN section. Reboots all around, and the LAN address is changed.

Adding in the second WAN link was also simple. Network > Internet page, then edit the secondary WAN link. After a quick trip through the WAN choices and a reboot of the cable modem, the 1000N grabbed hold and connected.

Just below the Internet connection listing is the WAN Load Balancing controls. They use a very simple metaphor: an on/off switch. Slide the switch to 'On' and both lines share traffic. You have no control over what type of load balancing is used, but you can set the ratios between the two WAN connections.

We found that the control is hidden far too deeply. You have to click through Network > Internet > Edit Connection > Show Advanced Settings, then scroll to the bottom of the page to the Load Balancing Weight field. The default is a 50/50 traffic split between broadband lines.

OPERATION

The 1000N ships with 90-day trial versions

How to Contact APC

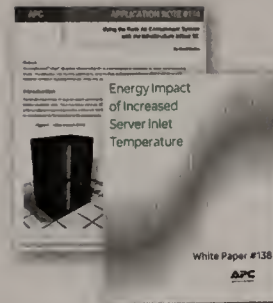
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of gateway antivirus updates, antispam, URL filtering, Dynamic DNS, and special logging and report utilities. When you open the admin screen, a sales pitch for service upgrades awaits. Past that, there's not a great screen that monitors the dual-WAN connection for traffic.

The best is Reports > Networks to bring up the Network Interface Monitor page. Clicking on the tree menu displays the connection details, including packets sent and received. You can refresh the screen but not clear the statistics, making it harder to see if a ratio adjustment makes a difference.

Even without much control, performance is right in line with the other units. When network traffic is light, the 1000N will maximize bandwidth well, but most of the time performance is about average for the group.

Though firewall details are beyond our purview for this review, the 1000N does a good job making them understandable. Going to Security > Firewall displays another sliding switch to set the security level to low, medium (the default), high or block all.

The SmartDefense system, Check Point's Intrusion Detection System and Intrusion Prevention System, displays a tree list on the left with explanations and default settings explained in the right side of the window.

Much like the SonicWall TZ200, the Check Point 1000N offers enterprise-level security granularity in a presentation that won't scare off non-experts. But the SmartDefense controls combined with sliding settings give 1000N the edge for being easier to understand. Add in the fact the complexity is there for larger companies providing these to branch offices, and you have a security appliance that covers both ends of the IT experience spectrum.

5. D-Link DFL-210 NetDefend Network Security UTM Firewall

The smallest unit of the D-Link NetDefend family, the DFL-210 is a dark-gray metal box about 6x8 inches, second largest of the group tested but still relatively small. All the connections are in the back with lights for power and status, Ethernet, WAN and DMZ ports on the front. Air vents on both ends and the top mean you need to place the unit in the open for air flow.

Included are two Ethernet patch cables, the power supply and a documentation CD. Unfortunately, the Quick Installation Guide is only on CD, with no paper version. Worse, the guide has errors. Also included are a Firewall Registration Manual (that's on paper) and a serial console cable for a command line interface.

The last two items give a strong clue to the

strength of the DFL-210 — it's much more a complex firewall that supports dual-WAN connections than a small business router with a firewall. D-Link's marketing says this is a Small Office/Home Office (SOHO) product, but it was the most difficult of all units tested to install and configure. This unit will frustrate most small businesses that try to install it themselves. That said, once up and running, the unit was rock solid and did a better job wringing slightly better speed from the dual-WAN connection than all the other units.

FEATURES

The DFL-210 has four Fast Ethernet (100Mbps) network connections, one dedicated WAN port and a DMZ port that does double duty as the second WAN port. Maximum firewall throughput is 80Mbps, which is better than most of the other units. VPN throughput is up to 25Mbps spread across a maximum of 100 tunnels. A highly configurable firewall leads the security package that includes intrusion detection and prevention. Tools for traffic management and QoS are included as well as SNMP support.

User authentication through RADIUS and LDAP help the DFL-210 integrate into a large network, another indication this isn't really a SOHO device, but can work fine in a branch office setting. Remote management controls are set by some of the many firewall policies, which include NAT, Port Address Translation and Static Address Translation.

Gather your lucky charms and stroke your rabbit foot for good luck before starting to install the DFL-210. Make your own luck by turning off the popup blocker in your browser on the computer you use to install the unit. Why? The setup screen appears only once as a popup, and if you don't catch it, you have to use a different computer or reset the unit to factory settings and try again. The Setup screen is supposed to be visible on the main status line in the administration software, but it only appears one time on each computer used to run the admin, never to be seen again, unless the unit is reset to factory settings and the process started over.

Since DHCP is disabled (the only unit tested so configured), you must prepare a PC in the 192.168.1.x address range to start the setup process. The first screen rightfully demands you change the admin user's password away from the default, but doesn't enforce or even suggest creating a strong password. Time and timezone settings come next, but an option to add external

timeservers doesn't appear until later.

Next, you choose your broadband connection for your WAN interface. Standard options for static, DHCP, PPPoE, and the PPTP follow as with all other units. As a nod toward D-Link's international sales, an option for Big Pond finishes up the list.

Finally you get a chance to turn on the DHCP server to parcel out client addresses, and put your address range for clients. Next you have to add the default gateway (unnecessary in other units) and type in your DNS server IP addresses.

The DFL-210 does not include a DNS server. If you put the same IP address in the DNS field as the default gateway, as you do with all other units tested here, your network clients will not be able to resolve URLs because they won't be linked to a real DNS server. For our tests, we used Google's free public DNS addresses of 8.8.8.8 and 8.8.4.4, both of which were passed to clients as requested.

Next comes the "helper" servers, including addresses for up to two syslog servers and two more external time servers. This ends the setup process, and when you click the Activate button, all the details will be saved to the DFL-210.

This is actually a nice touch. Using the admin utility through a browser, the Configuration drop-down menu has three options: Save and Activate (as just done), Discard Changes and View Changes. When fighting through more complicated configurations to make the unit usable, as we had to do several times, a list of planned changes ready to be implemented gave us a chance to double check before hitting Save and Activate.

OPERATION

Once restarted, network clients will have access through the DFL-210's firewall and security policies to the Internet through the WAN port. Converting the DMZ port for duty as the second WAN port takes some effort, none of which is detailed in the manual. Luckily, the technical support person we used knew his product well and communicated even more clearly.

All rules and policies refer to named objects, such as lan_ip and wan_dns2, rather than actual addresses. The table matching names to addresses is the Address Book where we changed the DMZ port address to match the second broadband IP address, then created a group that linked LAN traffic to both the WAN and DMZ (now WAN2) ports.

There are three options for WAN load



balancing: Round Robin, Destination and Spillover. Round Robin sends alternate packets through alternate WAN ports, and resulted in better bandwidth usage than any other router we tested. However, if clients outside connect via Secure-HTTP for any reason, the Round Robin alternate sources confuse the client, so Destination is the best choice in that case.

Feedback is just about non-existent. To track how many packets are coming and going, you must choose Status on the status line, then Interface. A screen named Interface Status appears, showing details from a single interface at a time. The only performance feedback is a text listing of packet and bytes in and out for that interface, along with the number of errors and dropped packets.

Although changing the LAN IP address from the default 192.168.1.x to our test lab's 10.0.1.1 is technically only a matter of changing the `lan_ip`, `lanet`, and `lan_dhcpserver_range` and activating the changes, we missed the time window to connect using the changed LAN address from our admin computer. We could never connect to the unit after that until we reset it back to factory defaults and started the setup all over again. We then left the DHCP address at the default, because the aggravation wasn't worth trying that a second time.

D-Link likes to advertise that its small business products have "enterprise features," and the DFL-210 certainly has them. However, it also has enterprise complexity for setup and configuration. Once through that aggravation, however, the DFL-210 provided the fastest average throughput rate during our testing by a small margin.

6. Trendnet BRV324 Dual WAN Advanced VPN Router

A metal box with all the plugs in the back and status lights on the front, the Trendnet Dual WAN Advanced VPN Router covers the same price range as Netgear. Four 10/100 Fast Ethernet ports, along with separate WAN1 and WAN2 ports, fill the back of the unit. The nine-pin serial port for a console connection looks positively nostalgic in today's world of RJ-45 and USB ports.

The BRV324 advertises support for 70 IPSec and 10 PPTP VPN connections, or 100 pass-through sessions with IPSec, PPTP and

How we tested the WAN routers

Our suburban test lab includes AT&T U-verse rated at 18Mbps, and Time Warner Cable data access rated at 15Mbps with "Turbo" mode for faster downloads. Each router was configured with a single WAN connection first and then reset for a new IP address range. Once the router was up and running, a second WAN link was added. We then ran real world tests for multiple days, tracking throughput and service issues. We also used the monitoring utilities provided by the routers to track how the traffic flowed between the two WAN connections.

L2TP. There's no firewall throughput number published, but the speeds for the BRV324 across two broadband connections are in the same range as all the other units. A color illustrated Quick Installation Guide is included, along with a CD manual and an Ethernet patch cable.

INSTALLATION AND CONFIGURATION

Using an IP address range of 192.168.0.1 is just different enough to avoid conflicting with existing addresses. Plugging in our network switch and the first WAN link, then turning on the computer, passed a client DHCP address properly to our configuration computer.

Using the browser to log in to the admin screens, we went to Setup and set the WAN connection type, choosing between Static IP, Dynamic IP (DHCP), PPPoE and PPTP. The WAN connected as it should.

Changing the LAN IP address range was a simple matter of clicking Setup > LAN Port to find the LAN IP address field. Right below that is the enable DHCP server checkbox and the IP address range. A quick save and reboot, and our network was up and running.

Adding the second WAN link was only a matter of plugging into the WAN port, choosing the WAN connection type on the same screen as earlier, and both WANs were up and running.

Load Balance, a menu option under Setup on the left-hand menu, offers a choice between Connection and Bandwidth for the load balancing metric. Unfortunately for a product with Dual WAN in the name, the BRV324 includes no helpful information about how the WAN balancing should be chosen. A

field named Primary Port Proportion, with a default setting of 50, is the only place to define if one WAN link should be given priority over the other.

Interestingly for a product at this level, the BRV324 offers an easy table to direct traffic to one WAN link or the other with a pick list of 42 protocols to direct to the second WAN connection. We doubt many small businesses will go to this trouble, but it's an interesting option on a low-priced router.

OPERATION

The opening screen of the admin utility is the General Status page. Details, addresses and connection status for WAN1, WAN2, LAN, the firewall, the system kernel, and the system details such as firmware version and system uptime are all available by scrolling down the page.

Surprisingly, the least-expensive router in the group has the only colored display screen. Under Status > Port Status, a colored pie chart sized with heaviest users sits beside a network throughput graph tracking levels over time. This is the only report that tracks throughput, but it only shows connections and speed rather than totals of bytes or packets. But at least there's a pie chart.

Although the CD-based manual has good tutorial information on setting up a VPN, the material needs a refresh. Windows XP is no longer the new client on the block, and Windows 2000 no longer powers the majority of user computers.

Accessibility and a clear menu structure in the admin utility makes the BVR324 a good choice for small businesses without expert help on staff.

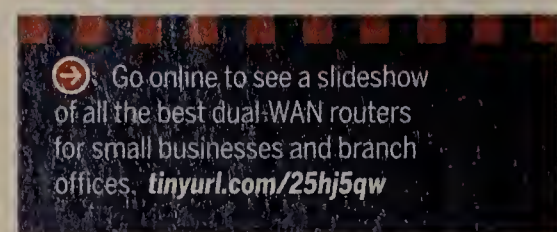
However, perhaps to keep from confusing users, the BVR324 tells them almost nothing about the central dual-WAN support at the core of the product.

Outside of those quibbles, the price and performance of the BVR324 makes it an excellent option for small businesses looking for an affordable dual-WAN connection router.

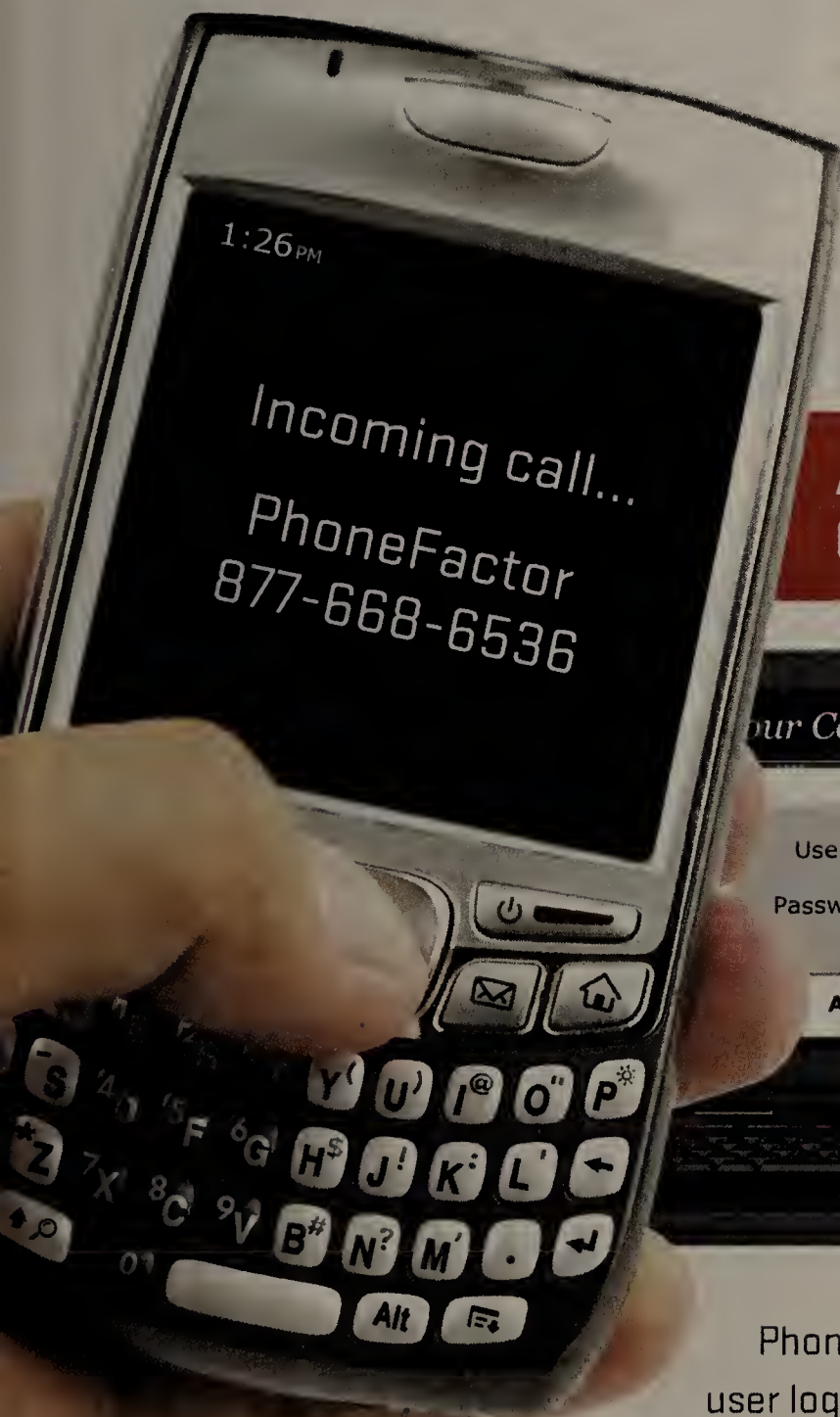
Summary

Dual-WAN routers have come a long way. WAN connections are easier to establish, and all units we tested have configurable load balancing. The performance increase, not to mention the redundant Internet connections that all but guarantee uptime, should put these dual-WAN routers at the top of the shopping list for every small business that needs a router.

Gaskin is an author, consultant and speaker. He can be reached at james@gaskin.com.



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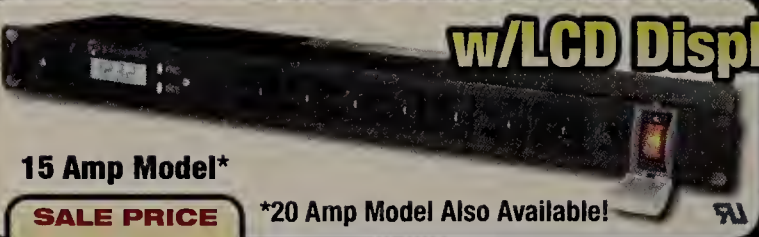


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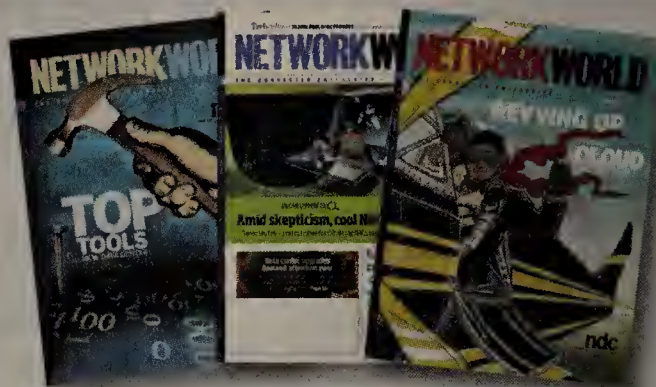
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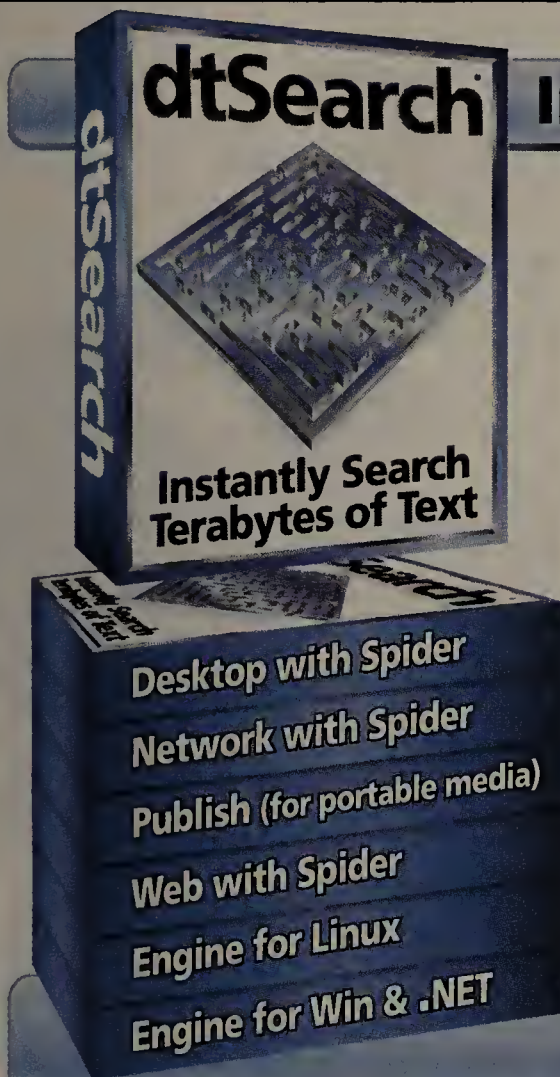
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■ Network World, Inc.

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To Send E-Mail to NWW Staff

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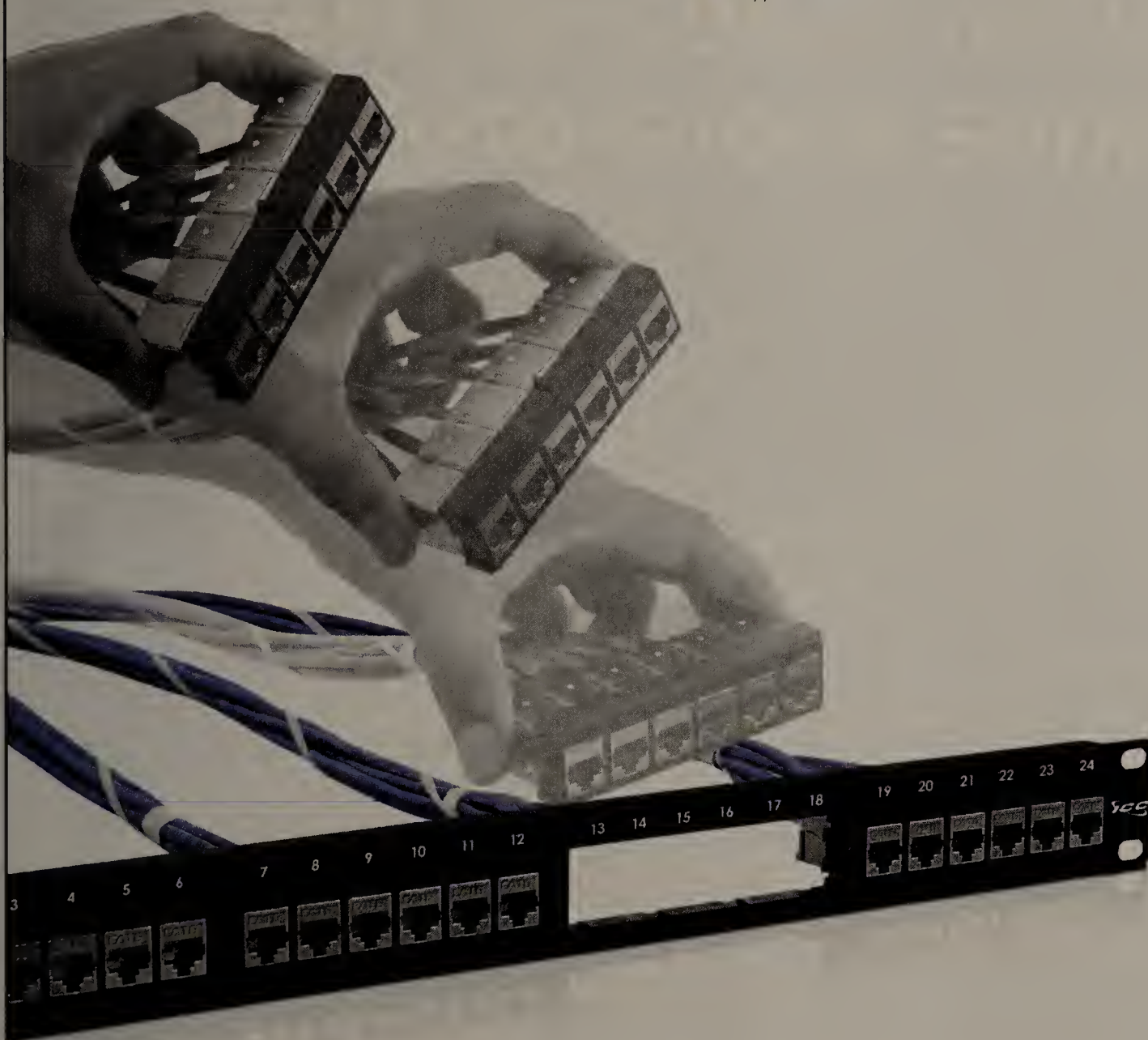
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If net neutrality dies, blame the comms junkies

"When [cellular] subscribers sign up for service, they want their network to move data — not to choose which companies are wealthy enough to

buy access to subscribers. Without vital net neutrality protections, companies with commercial incentive to limit the free-flowing Web, like T-Mobile, Verizon and Comcast, can decide who will have a voice online. These companies should not have the power to determine anyone's fate on the Internet."

— Joel Kelsey, Political Adviser, Free Press

Nicely put: Who will have a voice online is, indeed, the core issue.

What prompted Kelsey's comments was the recent announcement that T-Mobile was stepping definitively away from net neutrality (the idea that carriers should not be allowed to shape data traffic for their own commercial ends) and planning to make Google and Apple "pay to play" when it comes to video traffic.

If T-Mobile has its way, Google, Apple and probably every other company with the kind of consumer success that generates significant traffic will be sent a bill. The result will be no pay, no play. Should T-Mobile get away with this, then it's pretty much a foregone conclusion that every other cellular carrier will follow suit.

What T-Mobile and the other carriers who provide Internet data services (both wired and cellular) are missing is that these video services are "pulled" by the consumer, not "pushed" by YouTube. This means it is a choice by the consumer.

Now, call me crazy but it seems that any attempt to control what users can and cannot see, even if it is by just by limiting performance, has to be censorship and we can pretty much guess how this will play out. First it will be argued that this is just for video and it's for the good

of the network, then certain types of content, both video and Web, will get blocked for political or outright commercial reasons, and then, step by step, our rights will be eroded until we're all paying way more but only for what the powers-that-be allow us to see.

It seems to me that any such move by T-Mobile would have to violate the agreed terms of service and require a revised agreement. The obvious consumer move should be to take that as an opportunity to switch carriers without incurring any kind of early termination fee.

The same situation applies to Verizon's mooted termination of its unlimited data plan and AT&T's recent termination of its similar plan: Given that these are material and significant changes to the contract, users should be able to say "so long" without having to cough up ETFs.

But wait! It looks like all of the major carriers are doing the same thing, so other than leaving a carrier you don't like for one you might like, you'll still be losing out. Isn't that market fixing?

Even if the carriers aren't explicitly agreeing to all do the same thing, the fact that they are, actually, all doing the same thing that isn't in the consumer's interest should raise all sorts of red flags.

The problem is that consumers are addicted to their comms. They are all hooked on their iPhones, their Droids and their BlackBerrys. So, for example, will iPhone users leave AT&T because the company is changing the deal? Nope, they won't. And thus, the heart of the battle for net neutrality could be lost because consumers have become comms junkies. ■

Gibbs, in Ventura, Calif., has a 12-step program for comms addiction. Sign up backspin@gibbs.com.



Putting IE's market share gains in perspective

MUCH IS being made of the fact that Microsoft has at least temporarily stanch the bleeding in terms of Internet Explorer's

market share, and, in fact, has managed to nudge the number upward slightly in each of the past two months.

According to a report from NetApplications released last week, IE has gained about 1% over that time, mostly at the expense of Firefox and Chrome. Interesting, notable and probably has their attention at Mozilla and Google. However, it's also in need of historical perspective.

The July report leaves the top three at: IE, 60.74%; Firefox, 22.91%; and, Chrome, 7.16%. A year ago, Microsoft had a touch under 68% of the market, Firefox was just about where it stands now, and Chrome was just climbing out of the crib at 2.59%. IE has lost 10% over the past 12 months, while Chrome has almost tripled its share.

But let's hop into the time machine and travel all the way back to a 2004 'Net Buzz column (pre-blogging for me): "Bill Gates will hold a yard sale to help make ends meet before his company's Internet Explorer is displaced as the world's dominant Web browser."

"But that doesn't mean there's nothing meaningful in the browser usage trend data released recently by WebSideStory. According to the Web analytics firm, users of the Mozilla and pre-release Firefox open source browsers grew to 6% of the U.S. online populace as of Oct. 29, up from 3.5% only four months earlier.

"That's a solid jump from a modest starting point, yes, and Microsoft still commands a 92.9% market share. But the increased open source use comes almost entirely out of IE's hide and presages nothing but

good things for the official release this week of Firefox 1.0, the Mozilla project's almost universally acclaimed entry into the world of alternative browsers."

It's easy to forget that Microsoft was once essentially the only game in town (just as it's easy to forget Netscape Navigator was once almost universally acclaimed as the better of the two).

Only a year and a half later, there was this April 5, 2006, blog post: "Firefox has topped 10% in the latest browser market share report from Net Applications. But at what point — what percentage share — does Firefox transition from ankle-biter to leg-breaker? In other words, what is the magic number for Firefox to graduate from nuisance/media darling to a genuine threat to Microsoft's dominance of the browser market? ... I'm saying 20%. ... Anyone want to offer a different number?"

Firefox passed that 20% milestone in November 2008, according to NetApplications.

The initial Chrome beta had been released only two months prior.

Bottom line: There's plenty of life left in Browser War II.

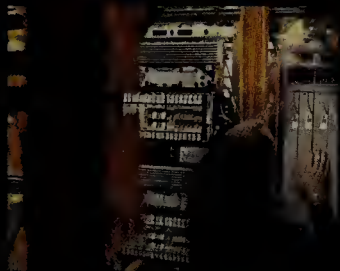
Nice idea, but about that name

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You call the app ... Text'nDrive? It's as if you made one of those Breathalyzer ignition locks and called it Drink'nDrive. ■

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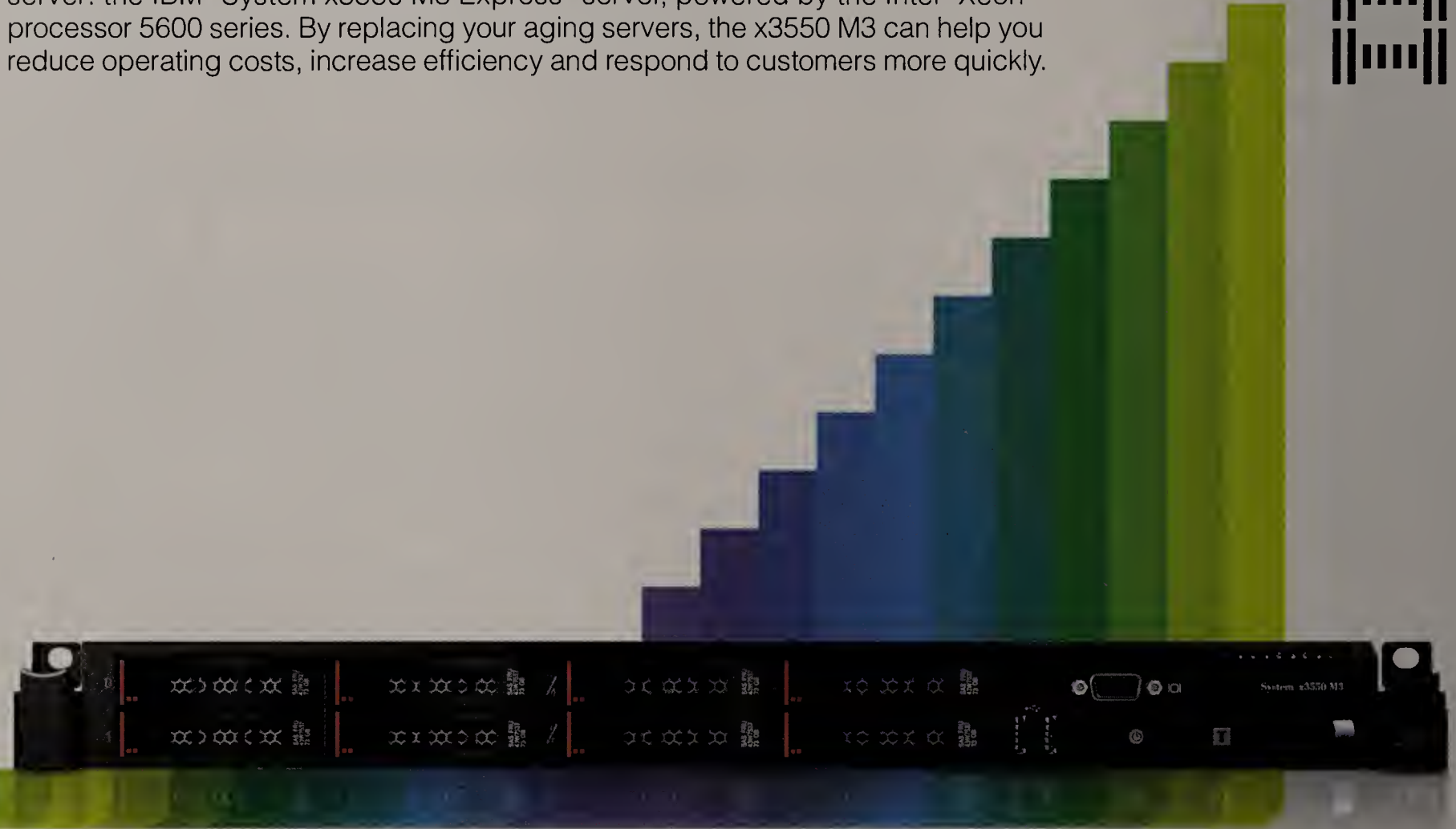
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